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repeat it in a little time

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See page 308.

Histories are more full of examples of the Fidelity of Dogs than of Friends.—POPE.

See page 309.

The Dog is the most complete, the most remarkable, and the most useful conquest ever made by Man.—CUVIER.

lon-BLA

Canine Pathology;

OR,

A DESCRIPTION OF THE

DISEASES OF DOGS,

Nosologically Arranged, with their

CAUSES, SYMPTOMS, AND CURATIVE TREATMENT;

AND A COPIOUS DETAIL OF

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PRECEDED BY

A SKETCH OF THE NATURAL HISTORY OF THE DOG,

His Varieties and Qualities;

WITH

PRACTICAL DIRECTIONS ON THE BREEDING, REARING, AND SALUTARY TREATMENT OF THESE ANIMALS.

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PREFACE

TO THE THIRD EDITION.

As no one, I believe, will attempt to dispute my claim to being the father of canine pathology, it will be expected of me, as its parent, from time to time to be doing something for the child of my adoption. Not to disappoint such expectations, this edition will be found to present some important alterations, improvements, and additions. The anecdotical portion, as not *necessarily* connected with the subject at large, has given place to a more strict philosophical inquiry into the animal himself, and to the introduction of many diseases not noticed before. The matter of the work is now divided into three parts. The first embraces the Natural History of the Dog, with an Inquiry into his individual origin, and into the source of some of his prominent varieties. The second part is devoted to a theoretical and practical consideration of the System of Breeding and Rearing these Animals, with their general Treatment, as conservative of Health. The third part comprehends the Diseases of Dogs; the alphabetical arrangement of which, in former editions, has given place in this to such a methodical classification as, while it renders it not less easy of reference to the amateur, will be more acceptable to the professional reader, from the *relative* view it will afford him of the various subjects thus congenerously grouped. Not that what is now offered has any pretensions to a strict nosological classification: on the contrary, it is evident that the work must yet be so framed

as to be a *vade mecum* to as many non-medical as medical readers; and a rigorous application of nosology would, therefore, be too technical for the occasion. It may hereafter assume a still more systematic dress: at present, *festinatio tarda est* will probably apply; and until circumstances allow or call for it, attempting too much might be found to be a preventive to the attaining of a little even. As regards the work generally, if my exertions should tend to alleviate the sufferings of an animal whose utility and good qualities can never be too highly estimated, I shall have accomplished my object: and here, probably, my address ought to terminate; but during the course of a long life, the circumstances of having been seen so repeatedly changing from one to the other of the seeming discordant pursuits of human and brute surgery; of army life, both military and medical; and of private life, as the country sportsmen, or the closeted author; have, I am aware, excited the curiosity of many, and subjected me to the tax of great inconsistency of conduct, and vacillation of purpose from others. Wishing, in common with the rest of mankind, to stand well with the world, and knowing that, however I may not be able entirely to rid myself from these imputations, I may yet, by detailing the principal circumstances which led to these constantly varying pursuits, shew that they were less *sought by* than *forced on* me, and that by such apologetical statement I may at once blunt censure and satisfy curiosity; with which intentions only I am induced further to intrude by the following

PROFESSIONAL LIFE OF THE AUTHOR.

I was educated with my maternal grandfather, a dignitary of the cathedral of St. David's; the bishop of the diocess becoming my godfather, with an understanding that I was to be brought up to the church, under his auspices. Unfortunately, the principles of my father, as a dissenting divine, frustrated these prospects; and it was at length agreed between the two parents, that I should be consigned to a less scholastic but more laborious profession, the *ars medendi*, which first aberration laid the foundation of all the subsequent ones; for of all professions, that of a parish priest offers the fewest temptations to deviate from a direct course. In consequence of this agreement, I was, at the age of fourteen, placed with an eminent practitioner in Buckinghamshire; and at twenty-one was entered a pupil at the Borough Hospitals, under the direct guidance of the ingenious Dr. Haighton, where I remained nearly three years, the last of which was passed under the roof of this friend of my family; and to whom, during my stay, it was my study to discharge some of my obligations, by actively employing myself in assisting him in his physiological experiments, and in myself making many of those particular dissections, and the whole of the drawings designed to illustrate the *re-union of divided nerves*, and the nature of the interposed substance, that gained him the *prize medal* of the Royal Institution; and which further led to the discovery of the *division of the facial nerves* as a cure for *tic douloureux*. About this time the public attention became engaged in forming a national college for the systematic study of brute medicine. One professor (M. St. Bel) had been already engaged; and there was yet wanting an assistant teacher of

anatomy and demonstrator; which being offered me, I accepted, and by so doing a second important aberration from purposed intentions was committed; but enthusiastically attached to animals as I was, as well as to natural history and comparative anatomy, it was little to be wondered at, if a young man should embrace a situation where his duties and his inclinations so well accorded. It may also readily be supposed, that the time thus passed would tend to divert my attention from my legitimate profession of human medicine; and although, after I left the Veterinary College, I resumed it for a twelvemonth in Sussex, yet I was again influenced, by strong temptations held out, to enter on a course of public teaching of the veterinary art; and also to engage in the practice of it at Lewes, where I met with much notice and encouragement. An improvident management of my resources, however, forced me from hence; and I once more resumed human surgery in a regiment of militia, with which I remained, until, at the recommendation of the late General Gwynne, always a kind and zealous friend, I was appointed to a surgeoncy in one of the troops of horse artillery, then stationed at Woolwich, with which I remained nearly three years, extending my knowledge of human medicine by witnessing the judicious management of the Woolwich Artillery Hospital, under the direction of the late Dr. Rollo; and as though the practice of brute medicine was ever to unite itself with whatever other pursuits I might be engaged in, I was requested to add to my duties the inspection of the extraordinary cases which might occur among the invalid horses belonging to the establishment. As may be supposed, my time spent here was neither idly, unpleasantly, or unprofitably employed; but my relations becoming urgent with me to leave the army, and wholly confine myself to human medical practice near them, I left the Artillery, and made my *debût* as a surgeon in the neighbourhood of Queen Square, London. Even here, however, the latent spark, which had smouldered but was not extinguished, again shewed itself by the employment of the hours that my

professional avocations left me in preparing and publishing the *Anatomy of the Horse*, in folio monthly numbers, with both coloured and plain plates. Of this work, it is certainly not too much to say, that it was a spirited undertaking: it was also thought so worthy of encouragement by that excellent character and great lover of this animal, George the Third, that he was pleased *personally* to urge my continuance of it, giving me, at the same time, permission to dedicate it to him. Settled as I now appeared to be, even yet a new aberration awaited me, fate herself seeming to have ordained that I should not remain long in one situation; for the death of a near relative investing me with a considerable property, I relinquished my professional pursuits, and retired into the country, where the expences of a sporting establishment in a few years forced on me the necessity of again adopting a new course of life. In consequence, I first accepted a commission in the North Gloucester Regiment of Militia, and in it, passed a campaign in Ireland during the rebellion; but after two years wasted in this manner, prudence dictating that it was doing nothing towards my future welfare, on the announcement of the expedition to the Helder, I offered my services to the Medical Board, which were accepted, and I was provisionally appointed surgeon to the second battalion of the 40th regiment, with which I immediately embarked for Holland. As this corps particularly distinguished itself, and bore the brunt of several actions, my experience in my profession received considerable additions; but neither my prospects nor interests seemed to be much brightened by my services, although a public acknowledgment of them by the regiment, coupled with a request for my continuance with it, was formally made to the Medical Board; but which availed little, for the system of favoritism of the surgeon-general of that time made him, at the instance of General Cameron, then embarking for the West Indies, order me to accompany him, although but three weeks returned from Holland. Indignant at such treatment, I refused to go; and thus any claim of mine for active service in several regiments was, in one mo-

ment, cancelled. Some years after this, when in professional attendance on the late excellent Duchess of York, her princely consort admitted my active services on the Continent (for he had often himself inspected my hospital regulations, with which he always expressed himself as particularly well pleased), and that they deserved a different treatment from the Medical Board, but over which he had no controul. After this throwing up of my commission, I did not immediately turn my attention to any new pursuit, but remained some time in suspense, at the instance of my kind friend and patron Lord Craven, who also had himself left the 40th regiment, with some expectation of obtaining the command of a rifle corps, and in which he promised to procure me a commission, in case his interest should fail to gain me the surgeoncy of it. I was, however, to be again foiled, together with his lordship, who, instead of his meditated appointment, was promoted to the rank of a district general; and I was consequently once more left to pursue my own fortune. Being not altogether destitute, I was in no hurry at that moment to risk a new run of ill luck; but, on the contrary, quietly retired into the north of England, where my days were occupied in sketching, shooting, or fishing, and my evenings in arranging my materials for the *First Edition of the Veterinary Outlines.* But such a plan of life did not long accord with my naturally active habits; and, moreover, it offered no prospect of future benefit and advancement. I began therefore again seriously to consider, to what object I should next turn my attention. The practice of human medicine naturally presented itself; but it was unpleasant to reflect, that I had lost some years in my start, and that my cotemporaries, from the advantage of early residence and locality, had outstripped me in the race; and that, the market being already overstocked with human surgeons, I had numerous difficulties to overcome, and additional time to waste, before I could hope to get even into tolerable practice. I, however, removed to London, where I some time lingered in uncertainty: but my *Veterinary Outlines,* which I had in the mean time published, becoming

known, together with the public remembrance of what little notoriety attached to my name as an early teacher at the Veterinary College, almost insensibly, and certainly unexpectedly, drew me into correspondences and practice on the diseases of horses, dogs, and domestic animals in general, which, increasing daily, at length determined me to devote all my future professional energies to these subjects. In this almost unbeaten tract I might hope to reap both fame and emolument; and although it might not appear so honourable a calling as that of human medicine, it was, at least, a very useful one, and, under all the foregoing circumstances, the most prudent one. The resolve was followed by a popular and extensive practice in the British metropolis, during which I produced a succession of veterinary publications, all of which have received the meed of public approbation, by passing through several editions, and by having been translated into several continental languages. Firmly resolved no more to deviate from this settled line of practice (which, although it was not that it has ever been my wish that I had remained in, yet has proved a remunerating one to me, and I hope not altogether a useless one to the public), I remained engaged in it for twenty years, although twice exposed, during that time, to temptations of a profitable and flattering nature to translate my professional services, first to India, and next to Russia. To induce me to take the direction of a veterinary school in Petersburgh, Prince Gargarini was directed, when the crowned heads were in England, to offer me the usual temptation of a title, with a liberal pension. By declining these, I hope I somewhat reclaimed a character for consistency, if not for prudence and wish for aggrandizement. For myself I have never repented the step; the retirement I have some years enjoyed, is still employed in editing new editions of my former works, or collecting materials for others connected with the improvement of the persons and treatment of our domestic animals. Thus, though happily not called on by want, my energies, my competence, and

my leisure, are yet devoted to the cause of humanity, and to that course which *chance* forced me into.

Little as this recital offers for boast or exultation, I shall, without doubt, be taxed with egotism and vanity, by introducing it. I have unquestionably personal motives in so doing; but if I know myself, they centre in the hope that thereby I may at once satisfy all curiosity; and that wherever I may be, I may stand confessed to the world with regard to what I have been, and with regard to what I am, and ever mean to be. We have every one of us a sphere of action of our own: mine is a humble and limited one; but the more narrow its limits, the more necessary is it that it should not be clouded by any doubts or obscurities.

PART THE FIRST.

THE NATURAL HISTORY OF THE DOG, AND HIS VARIETIES.

THE importance of the dog in the scale of animated nature admits of no dispute; but, on the contrary, is forced on our conviction by many striking proofs; among which the wide range of his geographical distribution, which exceeds that of almost any other scion of the zoological tree, stands prominent[1]. Its weight, indeed, is such as nearly to persuade us that no country is largely blessed with Nature's gifts which does not possess the dog; and certainly none can deserve the title of civilized, which, owning him, has not engaged him in a close domestication: on the contrary, we have reason to believe that it was one of the earliest efforts of associated man, to secure to himself and fellow men the friendship and services of an animal whose manners, in his wild state even, must have exhibited physical and intellectual powers which, in an eminent degree, qualified him, when reclaimed, to become a watchful and effective guard against the more predatory and ferocious brutes around; a powerful assistant and ally in that further conquest which he (man) would be naturally led to meditate over other animal races; as well as a devoted and interesting

[1] "Almost every nation of the earth, intertropical, temperate, and polar, possesses its own peculiar variety of the dog; the theatre of observation, therefore, is the world itself; and any thing like a description of the whole race would require a much more intimate knowledge of the surface of the earth than is at present obtained."—*Griffith's Animal Kingdom.*

companion[2]. Indeed, his protection against the ferocity of other animals could hardly be obtained by any other than this canine compact: neither is it too much to assert, that but for this he could never have extended his conquest over other brute races, or, having effected it, it would have been utterly impossible to have maintained it. In great truth, therefore, the subjugation and domestication of the dog may be called the triumph of reason over nature; and, as observed by Baron Cuvier, it is the most complete, singular, and useful conquest, man has ever made. Viewed in these several relations, our inquiries concerning the dog necessarily embrace, first, his *natural history*, properly so called; and, secondly, his *artificial history, or the alterations effected in him by his domestication with man.*

The *natural history* of an animal is most satisfactorily commenced by inquiries into its direct origin; and in this instance it would be peculiarly gratifying to trace the source from whence has been derived a race now so extensively diffused among us; and one that is become not more important by the value of its services, than interesting by its amiable and companionably qualities. But, unfortunately, we have to lament, that around the descent of no quadruped does there hang so much obscurity as about that of the dog; and however reason and analogy may lead us to conclude him an original animal; and however well convinced the majority may be that he is so, yet the subject is so beset with difficulties and contradictory appearances, that we cannot wonder at the doubts which exist in the minds of others on the subject. Some eminent naturalists have even doubted, whether the dog be not wholly a factitious

[2] "The intelligence and moral qualities of the dog, which it possesses in common with the rest of the class, though much greater in degree, form a subject perfectly impenetrable by our limited faculties: we may contemplate the effect, but can by no means arrive at the cause; we may speculate and conjecture, but can never demonstrate." *Loc. cit.*—"It is the dog only which takes delight in associating with us; and it is impossible for the naturalist, when taking a survey of the whole animal creation, not to feel a conviction, that this friendship between two creatures so different from each other must be the result of the laws of Nature."—*Burchell's Travels in Africa.*

animal; one not acknowledged by the great architect of nature, but altogether compounded from such spurious sources as the intermixture of *various* nearly-allied animals. Others have allowed him a more direct lineage, by confining his descent to one among those which compose the genus in which he is placed: thus, some have considered his parentage derived from the wolf, some from the fox, others from the chacal or jackal, and a few have regarded the hyena as his primogenitor. So infinitely varied are the scions of this great tree, that among those who, like myself, strongly advocate his claim to originality of formation, there are many of them who yet deem it impossible that all of his varieties can have sprung from one root. They cannot bring themselves to suppose, that even the powerful agencies of climate, food, and domestication could have operated diversities so monstrous and so multiplied; but, on the contrary, they maintain that he was originally formed in such corresponding varieties as fitted him to inhabit the different countries in which he was placed. I am as much as ever inclined to the opinion that the dog, in his native character, is an original animal; but whether he descended from an individual type, or from types fitted for different localities; whether he may not by intermixture with other members of his genus have also diversified his kinds, I am not ready to assert, nor prepared to deny. But when we regard attentively the effects produced by the powerful agencies already hinted at, particularly that resulting from climate, and that brought about by man when he assumes to himself the direction of the sexual intercourse, I cannot but incline to think, that the varieties of this animal, numerous and disproportionate as they are, might result from these united causes of themselves. I am convinced that this is at present the less popular opinion; but as I will endeavour to examine it with candour, and will equally state the arguments against it, as those for it, I cannot mislead by such a course, even if my opinion could be supposed to weigh materially: on the contrary, I shall further the cause of truth by a discussion thus conducted; and if a satisfactory

conclusion cannot be drawn by a few moments thus spent, at least it will not be uninteresting to the admirer of the animal, who may, perhaps, more readily afterwards draw his own inferences therefrom.

In the zoological arrangement of the great naturalist, Sir Charles Linné, the Dog, *Canis familiaris,* is the first species of a genus which comprehends animals whose exterior forms and habits are considerably varied, but whose generic characters bear a close resemblance to each other. The animals included are, the Wolf, *Can. lupus;* the Fox, *Can. vulpes;* the Jackal, *Can. aureus,* and the Hyæna, *Can. hyæna*[3]. The *characters of the genus* are drawn from the number and the incisive formation of the teeth. There are, in front, six pointed conical fore teeth above and below; the laterals being more lobated and longer than the others. The molar or grinding teeth are furnished with pointed prominences, and in the intermediate space between the incisor and molar teeth placed on each side, above and below, is found a solitary incurvate *tusk,* from whence this tooth derives its characteristic name of *canine,* wherever it is met with. The *specific characters,* or those by which this great master distinguished the *dog* from the other members of the genus, are—the head carinated or keel-shaped on the crown; the lower lip hid by the upper, indentated and naked at the sides; tongue smooth; five rows of whiskers on the upper lip; nostrils turned outward, into a crescent-shaped furrow; upper margin of the ears reflected and doubled posteriorly; anterior margin three lobed, with seven or eight hairy warts on the face; teats ten, six abdominal, four pectoral; feet subpalmated, toes furnished with curved claws, not retractile.

Baron Cuvier excludes the hyæna from the genus *Canis,* but retains the other members of the Linnæan arrangement. His *generic characters* are—three false molars above, four below,

[3] The hyena is not admitted among the caninæ of modern naturalists. A more close anatomical comparison has shewn that his organization required the formation of a distinct niche for his reception, as will be further noticed.

and two tuberculous teeth behind each carnivorous one. The first of these tuberculous teeth in the upper row is very large. The upper carnivorous tooth has but a single small tubercle within, but the lower one has its posterior point altogether tuberculous. Their tongue is soft. The fore-feet have five toes, and the hinder four."

"The *specific characters* of the domestic dog, *Canis familiaris*, L., are—his curved tail, and his variations, *ad infinitum*, as to size, form, colour, and the quality of the hair. The dog is the most complete, the most remarkable, and the most useful conquest ever made by man. Every species has become our property; each individual is altogether devoted to his master, assumes his manners, knows and defends his property, and remains attached to him until death; and all this proceeds neither from want nor restraint, but solely from true gratitude and real friendship. The swiftness, the strength, and the scent of the dog, have created for man a powerful ally against other animals, and were, perhaps, necessary to the establishment of society. He is the only animal which has followed man through every region of the earth.

"Some naturalists think that the dog is a wolf, others a domesticated jackal. The dogs, however, which have become wild again in desert islands, do not resemble either of these species. The wild dogs, and those belonging to barbarous people, such as the inhabitants of New Holland, have straight ears, which would lead us to the belief that the European races, which approximate the most to the original type, are our shepherd's dog and our wolf-dog. But the comparison of crania points to a closer approximation in the *mastiff* and *Danish dog:* after which come the *hound*, the *pointer*, and the *terrier*, which do not differ between themselves except in size and the proportions of the limbs. The *greyhound* is more lank, and its frontal sinuses are small, and its scent more feeble. The shepherd's dog and the wolf-dog resume the straight ears of the wild dogs, but with a greater development of the brain, which proceeds increasing, with a

proportionate degree of intelligence, in the *barbet* and the *spaniel*. The bull-dog, on the other hand, is remarkable for the shortness and vigour of its jaws. The small chamber dogs, the *pugs*, *spaniels*, *shock dogs*, &c., are the most degenerate productions, and constitute the most striking marks of that power which man exercises over nature.

"The dog is born with the eyes closed. He opens them the tenth or twelfth day. His teeth begin to change in the fourth month, and his growth terminates at two years of age. The female goes with young sixty-three days, and brings forth from six to a dozen young ones. The dog is old at five years, and seldom lives more than twenty.[4] The vigilance, the bark, the singular mode of copulation of this animal, and his striking susceptibility of a varied education, are universally known[4]."

The *artificial history* of the dog may with propriety commence with the synopsis of the varieties into which he is branched out. In the other species of the genus to which he belongs, this would rather belong to their natural history; but it must be considered, that by far the greater number of the varieties of the dog have been the result of circumstances not contemplated by nature: on the contrary, many of them, we know, have arisen from the direct agency of man himself; and the greater proportion are wholly domesticated with him. The *synoptical view* of this subject taken by that eminent zoologist M. Frederic Cuvier (a younger brother of the Baron), being now very generally followed by our best naturalists, will furnish me with an order of description slightly varying from that pursued in the last edition, but not, I believe, less demonstrative or interesting. Founded on the construction of the various organs of the body, internal as well as external, these illustrious brothers have reared their

[4] This illustrious naturalist evinces some of the nationality which marked Buffon in his reveries on the origin of the dog: nor can I agree with him that the dog is old at five; he is, on the contrary, then in his prime. And by limiting the number of progeny to twelve, he is equally in error: I took myself from a pregnant setter, after her death, sixteen young ones, within a week of their expected birth.

systems on the most solid base; employing principles which must produce the best effects on zoology, by rescuing it from fabled representation, traditionary account, or purposed exaggeration[5]. The shape of the head, and the length of the jaws and muzzle, have furnished him, as he conceives, with facilities in arranging the dog varieties *in the order of their approach to the parent stock,* which he does in three several groups. 1. Matins[6]; 2. Spaniels[7]; 3. Dogues.

[5] It is true, that a general view of anatomical structure has been that which has been pursued in the various systematic arrangements, from Aristotle to Linnæus, who also framed his groupings on structural criteria. But as it was principally founded on the existing peculiarities of the organs of circulation in such animals as possessed a cardiac system, so it was too general, and by no means sufficiently precise for the critical distinctions required by genera even, and still less of species; as we have seen instanced in the introduction of the hyena among the caninæ. Zootomy is of little use whenever it is confined to any *single* manifestation of life: structure and function are inseparable; and as the functional manifestations are numerous, so must the structural display be extensive, or it will fall short of its ends. In the immense variety of animated forms which surround us, we are dazzled by the complexity which apparently belongs to each, and are apt to shrink from the seeming arduous task of further inquiry. But if we regard nature on the principles of true philosophy, we shall find that a fundamental simplicity reigns throughout her works; and provided we commence by an examination and comparison of the organization with each other; if we extend it to the development of organization and function, as viewed in those in the next degree of complexity; progressing to the highest link in the chain; the task will be rendered easy, and we shall be no less surprised with the simplicity and unity of nature's laws, as displayed by such an examination of the animal kingdom throughout, than by the progressively increasing perfection in structure of its members as we advance. It is the apparent uniformity and harmony observed throughout every page of Nature's history, particularly as regards animal life, which embarrassed the attempts of the early zoologists: the gradations of organization, when cursorily or exteriorly viewed only, slide into each other with such lightly touched shades, that it is not to be wondered at, if in the absence of the stronger markings and distinctive lines traced by comparative anatomy, the divisions proved incorrect, or the groupings imperfect.

[6] I do not think this a sufficiently precise term for this group, nor, indeed, a correct one, according to the usual translation of the term *mastiff*. Without, however, here entering into the origin of this dog, the matins are none of them properly mastiffs.

[7] Spaniels, as derived from dogs of Spain, is evidently erroneous, when it includes those of Newfoundland, Siberia, &c. If it bespeaks dogs with a particular covering, it includes every variety, from the wiry hair of the northern

1. MATINS.

"The anatomical character of this group is—the head more or less elongated; the parietal bones insensibly approaching each other; and the condyles of the lower jaw placed in a horizontal line with the molar or upper cheek teeth."

Var. A—Dog of New Holland, *Canis fam. Austr.* Desmarest; Dinga, Shaw[8].

Var. B—French Matin, *Can. fam. lanarius,* Lin.; *Matin,* Buffon[9].

dog and the silky coating of the small spaniel, to the closely adherent one of the smooth terrier. If it is to class together dogs of scent, it should have taken in all the former, but particularly the Irish greyhound, or boar-hound of by-gone times, a dog of exquisite scent.

[8] M. F. Cuvier finds the head of this half-reclaimed animal to resemble that of the French matin, and his form to approximate to the shepherd's dog; and hence he places it at the head of the list, as retaining most of the distinctive characters of the wild and original stock.

[9] A nationality not uncommon with the French has made their naturalists attach wonderful importance to their matin, as the progenitor of most of our large and valuable breeds. Pennant identifies it with the Irish greyhound, which it somewhat resembles; but it is not so tall, nor is its hair so wiry. It is very common in France as a cattle dog, and a general guard; but in my own opinion it is, at least, not the genuine source from whence we derive our greyhounds. Still less is it connected in any way with either the bull-dog or the mastiff of England; but much more with the boar and wolf-hound. Sir William Clayton observes, "The French matin is tall and slender for his size, and resembles a half-bred greyhound." Mr. Wilson also says, "It appeared to me a kind of lurcher; and if I were to analyse its characters, I would say it was an intermediate between the shepherd's dog and the greyhound." It may be added, that it is strong, courageous, and swift; yet not deficient in the sense of smell, and was originally of a fawn colour, though I believe it is now often varied. Buffon's fanciful theories made this dog, which in its origin he considers a native of temperate climates, to become the Danish dog when carried to the north, and the greyhound when under the influence of the south. It is evident he could not become the English greyhound by this principle; and, indeed, we have sufficient reason to believe we derive the greyhound from a very different source. It is to be regretted that Mr. Griffith did not lend his powerful aid to a more critical examination of the sources of these several varieties. Original and valuable as are some of his elucidations, he is lamentably meagre here, instead of a close investigation; he appears to conclude that the Molossian or Albanian dog, the French matin, the Irish greyhound, with the Danish dog, and even the modern greyhound, are but ramifications of each other. This is settling the matter concisely, but certainly not satisfactorily. We know that

Var. C—Danish Dog, *Can. fam. danicus,* Desm; Grand Danois, Buffon[10].

In this division are also included the Dhole or wild dog of the East Indies, *Can. Orientalis;* a South American wolf-like variety; and the celebrated Albanian dog, which is one of great size and strength; his body covered with long silky fur, with a bushy tail. This variety is supposed to have furnished the Molossian dog.

Var. D—Greyhound, *Can. graius,* Lin.; *Lèvrier,* Buff. General characters: long head, slender limbs, deep chest, narnow waist, and great swiftness. It branches into the following sub-varieties—*a,* Irish greyhound[11]; *b,* Scotch greyhound[11];

the antients were jealous of the breeds of their dogs, and preserved them in purity with care; nor should we have received from them varieties so well defined as we find them, had their inter-ramifications been thus diffused.

[10] Danish Dog. Misconceptions arise, by either confounding this dog with the Dalmatian, or otherwise from not considering the Dane in two distinct varieties: 1. The Great Dane, *Le Grand Danois,* Buffon, which is considered as one of the largest dogs known. Marco Paolo must have inflated those probably which he describes as having seen of the size of asses. They are smooth coated, and appear to have been of a light fawn colour; but are now often seen brindled, or broadly spotted, or patched with a dingy brown on the original ground. The dogs of Epirus, so famed for their strength and courage, were of this kind. (Aristotle, lib. iii, c. 21. Pliny also notices them in terms of admiration, lib. viii, c. 40.) It appears to have a near connexion with the smooth varieties of the German boar-hound. 2. The Lesser Dane, Dalmatian, or Coach Dog, *Le Braque de Bengal,* Buffon, is a beautiful animal, regularly spotted over his body with black or dark blue spots on a light ground. In form he is between the hound and pointer, and without doubt might be cultivated into the one or the other. Bewick is severe on Buffon, under the idea of its incapacity of scenting game. But to give validity to his criticism, he should have proved that it wanted the faculty, which I make no doubt was as inherent in him as in any hound whatever. It had not been taught the pursuit of game, and was therefore not impressed with the ardour. Had Bewick confined his objection to the locality chosen by Buffon, that of Bengal, where a dog of his markings is not common, he might have had reason.

[11] The Irish and Scotch greyhounds, *Can. graius Hybernicus,* Ray, *et Scoticus,* Fleming, do not differ materially from each other, and both unquestionably own the same origin, and are synonymous with the German boar-hound and wolf-hound: as is well known, they are rough wire-haired dogs. Such as I saw in Ireland were majestically large, and united considerable speed with immense strength: they were of a light grey colour, with a mixture of yellow or fawn-coloured tinting. A century back, the Irish wolf dog, it is said, was nearly four feet high. The Marquis of Sligo is among the few who

c, Russian greyhound[12]; *d*, Italian greyhound[13]; *e*, Turkish greyhound[14]; to which should be appended the smooth or modern greyhound, *Leporarius*, Fleming[15].

preserve this race, which he does at Westport, in the county of Mayo. The Scottish greyhound, deer-dog, or ratche, is somewhat less in size than the Irish; at least such as I have seen more resemble a strong, coarse wire-haired true greyhound; but which, probably, depends on the deterioration of intermixture: for it is said that a few yet exist in the Highlands of nearly the same proportions with those of Ireland. Captain Brown, in his interesting *Biographical Sketches of Dogs*, informs us that Capt. Macdonell, of Glengarry, a gentleman remarked for his attachment to whatever characterizes the sports and customs of former times, keeps up this breed; and in order to preserve it from degenerating by consanguineous origin, he crosses them both with the blood-hound from Cuba, and the shepherd's dog of the Pyrenees; which latter is distinguished for its size, beauty, and docility. Sir Walter Scott's celebrated dog Maida was of this breed, and is said to have been a most noble animal. The boar-hound of Germany is not, however, of necessity a rough-coated dog, for it is more than probable that he derives his origin from the great Dane; whereas the rough-coated may be presumed to have drawn his from intermixture with some of the larger northern varieties, as the Siberian, Esquimaux, &c.; all of which are guarded with a thick curled coat.

[12] The Russian greyhound is not unlike that of Scotland, and possesses much agility. It remains to remark, that under whatever name this variety passes, whether of boar-hound, or of Irish or Scotch greyhound, it is a dog gifted with an excellent sense of scenting, and is equally brave, gentle, and affectionate: when, therefore, naturalists take on themselves to attach certain qualities to certain structural peculiarities only, as exquisite sensibility of smell, inherent sagacity, and devoted attachment to one group only, they limit nature within bounds she does not own.

[13] The Italian greyhound is a pigmy variety, of elegant form, but timid, sensitive, and tender in the extreme.

[14] The Turkish greyhound is even smaller, hardly so slender, and is frequently naked.

[15] The modern or smooth greyhound is wholly a factitious animal, and exhibits, in a wonderful manner, the power of cultivation. In early times this dog hunted as well by scent as by sight; and with such qualifications he must have proved very destructive to the larger kinds of game, as deer, wild goats, foxes, &c. Such a dog was the gazehound, of whose extraordinary powers in selecting and keeping his game in view we have many accounts. But as the larger varieties of game became scarce, or was principally hunted by packs of hounds, so the use of the greyhound became confined to the taking of the hare. To do this, however, effectually, the arts of cultivation and selection were called into practice, thereby to produce an increased celerity of motion, by a corresponding alteration in the form of the machine. The head was rendered flat and pointed, to offer less resistance to the wind, and to subtract from its weight: the chest was considerably deepened, somewhat at the expense of its general circular capacity, but without wholly destroying its seg-

2. SPANIELS.

Anatomical character: "The head very moderately elongated; the parietal bones do not approach each other above the temples,

mental flexure of rib; by which respiration could be increased, although both weight and resistance were decreased. The abdomen became wonderfully contracted, and its intestinal contents so devoid of all interstitial matter, as to offer little obstruction to the momentum of the machine, and little obstacle to the dilatations of the diaphragm. The extremities were at once fined and greatly extended, and their angles rendered capable of great extension by lengthening those portions which were principally concerned in propelling the machine, and shortening those which operated more in support than progression: thus it is with the greyhound, as with all animals of great speed, that the knee and the hock are both placed by nature very near the ground, dependant on the curtailment of the intervening portions. The muscles of the back, loins, and thighs in the greyhound are singularly large; and thus all these advantages of the bony mechanism can be assisted by an increase of moving power. But, that this increase of velocity gained might not destroy the equality between the pursuer and the pursued, which is an invariable law in nature, it followed that the head becoming long and pointed, occasioned such contraction of the frontal sinuses as to injure the sense of acute smell, and to annul the power of following the game by scent; and the greyhound is therefore now forced to trust to his vision alone, which at once brings him and his prey more on a par with each other. This cranial alteration appears also to have some effect on the faculties of this dog, by lessening the aptitude to education, and confining the general intelligence; but it does not do it in the degree that some naturalists would imply. The descent of the modern greyhound is not distinctly traceable; but it may reasonably be conjectured to be derived from the smooth variety of the wolf or boar-hound, rendered fine by transportation into warmer climates. Its name is said to be of Grecian origin: the race is certainly a very diffused one, and although we have the merit of having cultivated it to its utmost extent, as regards its celerity of motion, it is by no means exclusively English. In the Levant it is very common. In Turkey we have the authority of Mr. Dallaway for asserting that the greyhound is common, and that there they are large and white, with their legs and tails fantastically stained with red. In Laconia they are, according to Mr. Hobhouse, also large, and their hair long. The long-haired greyhound is therefore by no means confined to northern climates; neither are long external coverings of hair among other domestic animals uncommon in the warmest countries, as we see in the cats, rabbits, and goats of Angora; but the hair so seen, however long, possesses a silky fineness of texture, and does not retain animal heat as does the thick, wiry hair of northern animals, with a matting of wool at the roots. The greyhounds of the east, although delicately fine in their limbs, have many of them long silk-like coats. The elegant animal called the Persian greyhound, to the utmost lightness of form and smoothness of body adds the peculiarity of having his ears, legs, and tail, befringed with very long fine hair, like that of the setter or spaniel. In temperate climes, but parti-

but diverge and swell out so as to enlarge the forehead and the cerebral cavity. This group includes the most useful and intelligent dogs."

Var. E—Spaniel, *Can. fam. extrarius,* Lin. The name of the spaniel race is derived from its (supposed) original country, Spain.

The sub-varieties are—*a,* The smaller spaniel, with a small round head, the ears and tail covered with long hair; *b,* King Charles's spaniel, *Cam. brevipilès,* Lin.[16]; *c, La Pyrame,* Buff.; *d,* The Maltese, *Bichon,* Buff.; *e,* The lion dog, *Can. leoninus,* Lin.; *f,* The Calabrian dog; *g,* The hunting spaniel or cocker[17], which yields the setter, *Can. index,*

cularly in England, where the cultivation of the greyhound is carried to the highest perfection, he presents the most symmetric model of an animal formed for great velocity.

For a more full account of this important variety of the canine race, I would recommend the reader to a *Treatise on Greyhounds,* attributed to Sir Wm. Clayton, a Baronet of sporting celebrity. In this elegant and classic production will be found a fund of interesting and instructive matter relative to the breeding, rearing, and treatment of these dogs. According to the modesty of its author, it is besprinkled with "*a few* classical flowers;" but the reader will find it a gay parterre, where literary and sporting subjects change hands at every turn.

[16] King Charles II, it is known, was extremely fond of spaniels, two varieties of which are seen in his several portraits, or in those of his favourites. One of these was small, of a black and white colour, with ears of an extreme length; the other was large and black, but the black was beautifully relieved by tan markings, exactly similar to the markings of the black and tan terrier: this breed the late Duke of Norfolk preserved with jealous care. That amiable and excellent lady, the Princess Sophia of Gloucester, shewed me a very fine specimen presented to her by that nobleman, after receiving a promise, guaranteed by her royal brother, that she was not to breed from it in a direct line. Another was shewn to me by the late Lady Castlereagh, received after a similar restriction. Even the Duchess of York could not obtain one but on the same terms, as she herself informed me.

[17] No dog presents such endless varieties as the *Spaniel;* all, however, admit of two common divisions, into land and water spaniels: the latter are derived from the northern, the former from the eastern dogs. Land Spaniels are all characterized by a long silky coat; and whether strong and muscular, or slender and diminutive, they are equally elegant and interesting. They are proverbially faithful; and to the sportsman they are highly important, from their keen scent and attachment to the pursuit of game.

Lin.[18] — Addenda, The Newfoundland dog[19]; The Alpine spaniel[20].

[18] The *Setter* is undoubtedly derived wholly from the spaniel, and not, as has been supposed, from a mixture of spaniel and pointer. Robert Dudley, Duke of Northumberland, is recorded as the first person who broke (to the net) a setter (i. e. a spaniel), so called from its lying down before game until a net was drawn over both dog and game. After this aptitude had been displayed, it is natural to suppose that the breed would be continued, and future cultivations increased its size and powers. The setter retained the name of spaniel until of late years; and to this day he is called, in Ireland, the English spaniel. Gay calls him the "creeping spaniel;" Thomson, also, has

> How, in his mid-career, the *spaniel* struck
> Stiff by the tainted gale, with open nose
> *Outstretch'd*, &c.

The old English setter is now scarce, and has given place to a breed of less docility and subjection, but of enlarged size and increased speed: these are mostly red, and are of Irish origin. The term *Index*, by which the setter has been known, it is evident is not more appropriate; indeed, it is less so than to the pointer.

[19] The Newfoundland dog, now so much cultivated among us, was, without doubt, originally received from the country he derives his name from; but whether he derives his original parentage from thence admits of much doubt; indeed, I believe it admits of an absolute denial. In all probability he owns a lineal descent from the large Spanish dog, introduced by the early discoverers of the American continent, which, intermixing with the native breeds, produced an increase of size and power among them. These would be encouraged by the natives, because the uses they made of them as beasts of draught were thereby better fulfilled. Such, we have reason to believe, was the first improvement made on the native dogs of these countries, which, as far as a factitious breed can continue its like, seems to have remained a standard among them ever since, and is that which forms the *smaller smooth aquatic dog* of Newfoundland. When the English settled themselves here, they, without doubt, carried with them some of the largest and most powerful of the water spaniel breed, to assist them in the hunting and shooting of wild fowl; and there is little reason to doubt but that this was the source from whence our admired specimens of the large Newfoundland dog arose; the breeding of which, however, was never carried to any great extent in that country. The rigors of the climate, and the difficulty of procuring food for it during some seasons of the year, were unfavourable to both the production of numbers and to the full development of the frame. The splendid animal we now see has been greatly increased in size since its residence among us: we have cultivated it so as to make it now an English breed, while in Newfoundland it is at present so nearly extinct, that a gentleman relates, in No. 123 of the new series of the *Sporting Magazine*, that he could not find a single dog of the kind in St. John's. It is, therefore, a fallacy for naturalists to assert that the dog we possess is the same with that which is "employed in their native districts in place of the horse."

[20] It appears to me a complete misnomer to call this a spaniel. It is not

Var. F—The Water Spaniel, *Canis aquaticus,* Lin.; *chien barbat,* Buff.

Sub-varieties—*a,* small water spaniel, *petit barbet,* Buff.; *b, chien griffon,* a dog between the water spaniel and the shepherd's dog.

Var. G—The Hound, *chien courant,* Buff.; *Can. sagax,* Lin. Essentially this is the same as the blood-hound. The older varieties of the hound were all designated by the term Talbot, which term is, however, now often applied to the blood-hound, he being, with the exception of an occasional pack of harriers of the old growth, the only hound left with heavy limb and long pendulous ears. The sub-varieties are—The stag-hound, the fox-hound, the harrier, and the beagle.—Addenda: the terrier[1] in his varieties of rough Scotch terrier, black and

rough, or at least not shaggy, in its coat. It is too heavy for the purposes of hunting, and I believe betrays no propensities of this kind; but it is in every respect a *mastiff*, possessing all the qualities of our dog so called, and his appearance likewise, with the exception, that the upper lip is less pendulous, and the face altogether shorter. Mr. Griffiths has much curtailed its dimensions when he gives the height as two feet at the shoulders. There is extant an engraving, made from a portrait taken by Mr. Edward Landseer, of one which at a year old was six feet eight inches in length from the nose to the end of the tail, and two feet seven inches in height at the shoulders, at which time he must have had some inches to grow. I saw, some years ago, two of these dogs, of size nearly equal to this, and of the usual colour, which is a tawny, between red and yellow.

[1] The *Terrier.* It is by no means easy to trace the origin of this useful and interesting race, which is branched out into endless varieties. In *The Farrier and Naturalist,* No. 10, it is said "that the terrier's name appears to be derived from his entering holes in the earth after his game, and from the minute description given of him in Oppian's poems, who lived in the days of Severus, A.D. 194. It is certain that the breed has been long known in this island, and so far appears to have been an original native. Linnæus states it was first introduced on the continent, so late as the reign of Frederic the First." I cannot, however, agree with what follows,—that it is probably the vertagus or tumbler of Raii, and some other writers, which was, I believe, a very different variety; nor am I aware that any of the true terrier breed has discovered the smallest propensity to this stratagem. The qualities of the terrier are to the full as diversified as his form: he may be taught to do any thing that dogs do, and to assist in the pursuit of every species of game; but his instinctive propensities are directed to the destruction of what is called *vermin*, as badgers, polecats, rats, mice, &c. The rough terriers are usually grey or white; the predominant colour of the smooth kind is jet black, with elegant tan markings.

tan terrier, bull terrier, with endless mixed breeds between these varieties.

Var. H—The Pointer, *Can. avicularis*, Lin.—As a sub-variety, the text of Cuvier has a Dalmatian pointer, *braque de Bengal*, Buffon. I doubt the propriety of this enumeration, but I do it with diffidence, from the weight of the authority. I am not aware that any sporting dog, of the markings of the Dalmatian which follows our carriages, is used in India. It is true there is a small variety of pointer, spotted, brindled, or pied in the colours of the Dalmatian; but I do not know whether that has ever reached India; still less likely is it to be used as a sporting dog.

Var. I—Turnspit, *Can. fam. vertagus*, Lin.

Var. K—Shepherd's dog, *Can. fam. domesticus*, Lin.; *Le chien de Berger*, Buff.[2]

[2] Notwithstanding the great variations in size met with in the pasture or shepherd's dog, in different countries of the globe (for he is probably the most extensively diffused of the race), yet he everywhere preserves some personal characteristics, which mark his adherence to the original type in a greater degree than in any other race over which man has so arbitrarily exercised his dominion. One of these is, his *quantity* of covering, which is invariably great, particularly about the neck. In temperate climates his coat is long and shaggy; in cold ones it is coarse, and crisped or waved in minute curls; in arid regions his hair is still long and shaggy, but fine. In Britain it is remarkable that we have resemblances of all these varieties, as witnessed in the large drovers' dogs which attend the beast markets; the true shepherd's dog of South Britain, and the sagacious colly of North Britain. The ears are never entirely pendant in any of the race; but in the British varieties, and many others also, are half erected, or *half pricked*, as it is called. The colour is also very generally grey, more or less dark. The natural tail of the British breeds is bushy, somewhat pendant, and recurved, such as is seen in the colly; but in England a custom has so long prevailed of cutting off the stern, that many of these dogs are now actually born with less than half a tail; which serves to shew how even the bony structure also, in other instances the most permanent of the whole, bends to circumstances arbitrarily imposed, and continued with regularity. The visage of the shepherd's dog is more or less pointed; in the colly it is much so; but in the large drover's dog of South Britain it is much less: this latter dog is remarkable for seldom trotting or walking, but, on the contrary, he paces either fast or slow. The whole race have the additamentary toe, or *dew-claw* of the sportsman. From the colly, of little more than twelve inches in height, to the Appenine of nearly three feet, one common character prevails, of fidelity, indefatigable industry, and intel-

Var. L—Wolf dog, *Can. pomeranus,* Lin.

Var. M—Siberian dog, *Can. Sibericus,* Lin.

Var. N—Esquimaux dog, *Can. fam. borealis,* Desmarest.

Var. O—The alco.

3. DOGUES.

Anat. Char.: "The muzzle more or less shortened; the skull high; the frontal sinuses considerable; the condyle of the lower jaw extending above the line of the upper cheek teeth. The cranium is smaller in this group than in the two previous, owing to the formation of the head."

Var. P—Bull dog, *Can. fam. molossus,* Lin.; *Le dogue,* Buff. *Canis. pugn. prop.*[3]—Sub-variety, dog of Thibet.

ligence, with a deportment singularly grave throughout the race. The origin of this dog is difficult to trace, particularly from the sources pointed out by the naturalists of the last century; yet if we direct our attention closely to the subject, we shall detect a very near resemblance between him and some of those specimens derived from Australia and high northern latitudes, but which, it may be observed, differ among themselves; the dog used to prevent the destructive attack of wolves on the rein-deer, and which drives them to the fold, being, we are told, not the same with that used about the Mackenzie river.

[3] Linnæus seems to have fallen into much error in naming this *Molossus;* but his error was less than that of Buffon, who considered the bull-dog to be the parent of the mastiff, itself originating in the alteration which a temperate climate had wrought on his universal progenitor, the shepherd's dog. In my present opinion, for I once thought differently, the bull-dog is either *immediately* derived from an accidentally *stunted* variety of mastiff, which supposition the outward bending of his fore-arms, and general contortion of limbs, as well as the projection of his lower jaw, would favour, by bespeaking a ricketty constitution; or otherwise he may have been mediately brought about, and not improbably, according to the supposition of the late Sydenham Edwards, who to much acquirement as a naturalist added a particular attachment to this dog. He is of opinion that he is derived from an accidental or designed mixture between the large mastiff and the pug-dog, which was then known as the Dutch, or small mastiff; and which, it must be observed, is by no means, in Holland, Germany, &c., the artificial animal we rear; but, on the contrary, as I have seen it there, is much larger and fiercer than our degenerate race: and it must be allowed, that a progeny derived from it in this form, by means of the mastiff, might soon be cultivated into the bull-dog. That the origin of the bull-dog is wholly artificial is evident; for such a dog could not live in a state of nature; and that he draws this artificial origin from

Var. Q—The Mastiff, *Can. fam. Anglicus,* Lin.; *Le dogue de fort race,* Buff.[4]

British cultivation, is equally so, from the degeneration which invariably takes place when he is transported into distant countries. There is a brutal courage about this dog, called forth on the slightest excitement, as an accidental noise, &c., which particularly characterises the breed; and its frame is eminently formed to retain the hold it takes of any thing, by the recession of its nostrils, which do not thus interfere with respiration, as well as by the power with which its masseter muscles can act on jaws whose place of seizure are so little removed from the centre of motion. Mr. Griffith observes, "The internal changes which determine the external characters of this dog, consist in a great development of the frontal sinuses, a development which elevates the bones of the forehead above the nose, and which leads in the same direction the cerebral cavity. But the most important change, and that perhaps which causes all the others, although we cannot perceive the connexion, is the diminution of the brain. The cerebral capacity of the bull-dog is sensibly smaller than in any other race; and it is, doubtless, to the decrease of the encephalon that we must attribute its inferiority to all others in every thing relating to intelligence. The bull-dog is scarcely capable of any education, and is fitted for nothing but combat and ferocity. A fifth toe is occasionally found, more or less developed, on the hind feet of this race. This, like all other races far removed from the primitive type, is difficult of reproduction; the males are seldom amorous, and the females frequently miscarry. Their life, also, is short, though their development is slow: they scarcely acquire maturity under eighteen months, and at five or six years shew signs of decrepitude."

[4] Mr. Griffiths derives the mastiff from the bull-dog, which appears to me most erroneous, the latter being a dog of much later date. The mastiff is a straight-limbed dog, his lips are characteristically pendulous in a much greater degree than the bull-dog, and he is never underhung, and seldom has dew-claws, which are so common to some breeds of the bull-dog. His tail also is longer, thicker, and less tapered, and seldom carried erect. Buffon forgot the antiquity of this dog when he attributed its origin to the bull-dog and the Irish greyhound; nor is it likely, considering the known tendency in the bull-dog to degenerate, that he would be so extensively diffused, and so readily preserve in this wide diffusion his hereditary form and qualities. Wherever he is met with, he is nearly the same, whether it be in the Alps, in Poland, Sweden, Italy, Spain, or the Levant. As he extends into warmer countries, however, he becomes rather more slender; thus the mastiffs of Cuba, in the Zoological Gardens, approach the old Spanish pointer in figure. The breed of mastiffs was, in "olden times," an important branch of British commerce; and when this island was under the Roman yoke, these dogs were in such request, that an officer was appointed, under the name of Procurator Synegii, to superintend the breeding and transmitting them to the Roman amphitheatre. Strabo tells us that these dogs have been trained to war, and were used by the Gauls against their adversaries. As a guard, there is no dog whatever that can supersede the mastiff; but unfortunately the beauty of the Newfoundland dog has almost done this, and the change has not been a fortunate one on

Var. R—The Pug Dog, *le doguin*, Buff.

Var. S—The Iceland Dog, *Can. fam. Islandicus*, Lin.

Var. T—Little Danish Dog, *Can. fam. Islandicus*, Lin.

Var. W—Bastard Pug, *chien roquet*, Buff.

Var. V—*Can. fam. Britannicus*, Desmarest.

Var. X—Artois Dog, an extinct var. of the *Can. fam. fricator* of Linnæus.

Var. Y—Dog of Andalusia, sometimes called the dog of Cayenne.

Var. Z—Barbary Dog, *Can. fam. Ægyptius*, Lin.; *chien Turc*, Buff. Of this dog there are two varieties, one quite naked, the other with a mane.

The detail I have already entered into is of itself, I should

the score of trust. The mastiff is vigilant in the extreme, and no less cautious than watchful: in prosecuting his duty, he is silent as a sentry; and while there is no danger he appears as monotonous and indifferent to all around him; and under such circumstances it is difficult to decide which of the two is most like an automaton. But a suspicious footstep made with caution is instantly heard, and as instantly but silently watched and attended to. An ill-looking person is not molested, but is followed as far as the precincts of the guard extend; and so long as nothing is touched, the intruder is safe; but no longer. Even then he is seldom injured; sometimes he is merely led out; and unless resistance is offered, few lacerations have been received from this formidable but generous beast. What would I not have given to have seen the one which was found standing over a robber who had broken into a yard at Islington! The owner was called up by the watchman, who informed him that, "by the bustle he heard in his yard, something was going on wrong there." It was the brave mastiff, who had siezed the thief, had thrown him down, and had been standing over him, it appeared, two or three hours: as long as the man remained quiet, the dog did not even threaten; but the moment he stirred only, a tremendous growl informed him he had better remain still. There are not many Newfoundland dogs which would have exhibited this forbearance; yet they are also brave and generous, but being more uncertain, are very inferior as direct guards for important trusts. The mastiff never sleeps on his post, the Newfoundland dog does; for he is a lively frolicksome creature, who is much in action, even when chained up; and therefore when night comes he sleeps. The mastiff has been for ages employed as a guard; and therefore, like the watchman, during the day he sleeps, as a part of his nature and duty: neither has he any pleasures to pursue; but, like the shepherd's dog, all his propensities merge within his business. I have somewhat dilated on this matter, because I think the threatened extinction of the mastiff is an unfortunate circumstance in commercial, rural, and domestic economy.

hope, confirmatory of the *originality* of the dog, as tending to shew that he differs essentially from every other member of his genus. In the specific differences quoted by the authorities which have been noticed, there appears no mention of what may be, with justice, called special characteristics, as never appearing in any of the other species. The tail of the dog always takes an arched direction, and it always likewise, I believe, inclines to the left: whenever also any white is present about the body, the tip of the tail is sure to be of the same colour. Of the caninæ, the dog alone has offered himself for domestication; and had there not been insuperable objections to the others, the enterprize of man would undoubtedly have attempted it. The bark of the dog is certainly an additional trait in his character, but it must be allowed to be not of much force, seeing that it is not invariably attached to them: all wild dogs are more or less mute, and some half-reclaimed ones howl only. The *originality* of the dog, therefore, ought not, I conceive, to be any longer considered as questionable. Nevertheless there are authorities of much weight, who attribute to him either a mixed or a spurious derivation. Mr. Wilson says, "Many well known varieties of the dog exhibit so *wolfish* an aspect, that their descent from that species can scarcely be a matter of doubt." Although this similarity in some is true, as it is also that these two species have intermixed, and have produced prolific offspring, yet when it is well known that in a state of nature the utmost abhorrence to each other exists, I cannot admit that such can be a frequent, although I am not able to deny its being an occasional, source of some mixed breeds, but to the perpetuity of which I should be very sceptical. The real identity between the dog and wolf is farther contradicted by the angular form of the bony assemblage of the head of the wolf; the auditory portions of his temporal bones are likewise placed higher, and more anteriorly in the skull; the orbitary fossæ are more inclined, and his teeth are longer, stronger, and present some differences in form; his cubitus is longer and more obliquely placed than the dog's, and his tail is always pendulous.

The *fox* differs essentially from the dog, in being a solitary nocturnal animal, and in having a specific formation, to assist his vision at night, in the linear direction of his pupil; his teeth also differ in direction; and though the intermixture between him and the dog has been forced, it has been an unnatural one; nature having in them, as in wolves, marked their want of identity by a settled general aversion. The character of the fox has none of the traits of the dog; no efforts have been able to wholly reclaim him: the suspicious watchfulness and the sudden treachery of a predatory animal, never wholly leave him. He is also, to a certain degree, like the chacal, mephitic throughout his numerous varieties, and which property is so purely vulpine, that it is not, I believe, imparted to his bastard progeny. The modulations of voice of the fox, throughout its variations, are totally unlike that of the dog: also he whines continually. To the hyena as a parent of any variety of the dog, although the notion is entertained by Pallas as the origin of the mastiff, it may be objected as most unlikely: the hyena is of a totally distinct genus, and the union, if effected and productive, could not, by the usual laws of nature, have become perpetuated. Guldenstaedt attributes some of our dogs to the chacal or jackal, and details their proofs of identity[5]. Pallas, too, is of a similar opinion; and also asserts, that the Kalmuc dogs are neither more nor less than jackals[6], and the remainder he appears to think derived from spurious sources[7].

[5] "Oderat anum alterius; cohæret copula junctus."—*Nov. Comment. Petrop.* vol. xx, p. 450, tab. xi.

[6] Homini facillimæ adsuescit nunquam, uti lupus et vulpes cicurati, infidi animi signa edens, lususve cruentans; canes non fugit sed ardentur appetit, cum lisque colludit, ut plane nullum sit dubium cum iisdem generaturum si tentetur experimentum. Vocem desiderii caninæ simillimam habet; homini cauda eodem modo abblanditur, et in dorsum provolvi atque manibus demulceri amat. Ipse quoque ululatus ejus, cum latratu canum ejulabundo magnum habet analogiam. Ergo dubium vix esse puto, hominis speciem, in eadem cum lupo aureo climate naturaliter inquilinam, antiquitus hujus catulis cicuratis domesticos sibi educasse canes, quorum naturalis instinctus jam homini, quem feri non multum timent, amicus, et in venationem pronus erat.—*Spicil. Zool.* fasc. xi, p. 1, note.

[7] Mémoir sur la Variation des Animaux.—*Acta Acad. Petrop.* 1780.

Mr. Wilson's opinion seems to lead to a supposition that the chacal may be regarded as the true wild dog, and as such, the true source probably of most of our domesticated dogs. Fortunately for the claim of the dog to the honour of an original and specific formation, this theory, otherwise very specious from the great similarity of structure between the two animals, loses its principal force, as is indeed admitted by Mr. W., when we reflect that this origin cannot apply to the wild dogs of New Holland, nor to those of North and South America, where, notwithstanding the assertions of Father Gili, Humboldt has clearly proved the dog to have been known long before the first visits of Europeans. In these countries, at least, we must look for another origin for the dog; which Pallas has supplied by deriving the larger tribes, as the mastiff, &c. from the hyena, and the terrier from the fox. Mr. Wilson has very successfully combated these immediate origins; but he is equally convinced with them that some of our larger breeds are derived from the wolf.

As regards the identity of the dog with the jackal, there can, I think, be but one opinion, when we consider the circumstances of the limited geographical distribution of the latter animal. It is well known that he is formed for warm regions only: in the colder he never multiplies, with all the care man can bestow on him; and near the tropics no art can even keep him alive. He is physically designed for a high temperature, and cannot be naturalized by art, like many other animals, to a cold one: it would be most irrational, therefore, to suppose that he would be chosen as the progenitor of an animal so widely diffused, north, east, west, and south, as the dog. There are also, if not great structural dissimilarities between the animals, yet some distinctive marks of much weight. Like the fox, although it may in its own country be sufficiently tamed to allow of being handled, it submits from fear; but no kindness, however long continued, can inspire confidence in it. It also emits the most offensive odour, which it does not, like some of the mephites or skunks, lose under domestication. The dog, therefore, may lay claim to a true ori-

ginality of general character, which is sufficient for my present purpose. But whether some of his endless varieties may or may not have arisen either from his own intermixture with some of the nearly allied species, or have resulted from intermixtures between these allied species themselves, my limits will not allow me to inquire further than by glancing at the agencies of climate and domestication; which if they have not themselves originated these variations in size, form, and character, may yet be shewn to be fully equal to account for the *diffusion throughout the world from one original type.*

Both sacred and prophane history have united in deriving man from Asia, where we also find some of the most valuable of his domesticated animals, as goats, sheep, dogs, &c., still existing in their primeval state. If man, therefore, found the means of transporting himself over the face of the globe, it may be supposed he would be accompanied by these his dependents; and if man himself owes his variations from what must have been his original type to the interventions of climate, diversifications of food, and altered habits, it is most rational to suppose similar alterations might take place in the animals he fostered. But it might be expected, as it is found to have happened, that among them the varieties of form, colour, and properties, would be more numerous and remarkable; because, in addition to the effects of climate, man assumed the direction of all their energies, the selection of their food, and the regulation of their sexual intercourse. Even climate alone is equal to produce wonderful changes on animal bodies. In ourselves it begets the extremes of white and black in the colour of our skins within the tropics; while extra-tropical shades ranging between, mark the degrees of heat and cold. Most of the animals of high northern latitudes become of a lighter hue, as winter approaches, from a similar principle of adaptation with that which also increases the quantity of their clothing; the light colour preventing the natural heat of the body escaping by the active radiation which occurs from bodies more darkly clad. The alteration in the general texture of these coverings, by the

effect of climate, is no less remarkable than that produced on their colours. In the sterile and inhospitable regions, where ice and snow hold a stern dominion, the quadrupeds are furnished with a short fleecy tegument, which is rendered still warmer by either a long and shaggy, or a short and crisp surtout of strong hair. The feathers of alpine water fowl conceal an immense mass of the warmest down underneath, while the land birds of these regions are feathered down to the very claws. To further exemplify the effects of climate, observe how different are the clothings of the thick-fleeced dog of Baffin's Bay and the naked dog of Barbary; the dense woolly covering of the European sheep, and the thin hair of those inhabiting hot countries. Contrast the glossy tunic of the Arabian stallion with the shaggy coat of the Shetland pony; and further, it may be observed, that where, for the purposes of beauty, nature has bestowed on the beasts of arid climes a long coat or covering, it is commonly observed to be one whose thin and silky texture can neither absorb the solar rays nor confine the animal heat: this may be seen in the lengthened fine hair of the goats, cats, and rabbits of Angora, and other eastern countries. Our domesticated animals are even under the influence of climate, and, as winter advances, they are seen to change their thin fine hair for one of longer and thicker texture. Our horses in autumn prepare for the coming season, and change their fine summer coat for one thicker and longer; but, under an artificial climate produced by hot stables and extra clothing, by losing the stimulus of necessity, they retain the same appearance throughout the year. Neither are the coverings of the body the only parts that are subject to the effect of climate; the form and bulk also are equally affected by its operations. By its powerful agency, varieties the most disproportionate are produced. Compare the eastern pigmy horse, scarcely thirty inches high, and the diminutive ponies of Shetland; compare these with the stately coach and cart horses of England. Place together the gigantic urus of Lithuania; the monstrous bison of America, with his shoulders surmounted by an enormous lump of flesh; the mild

zebu of Africa; the musk bull of Arctic regions; the European ox, and the dwarf bull of India, not higher than a young English calf; having so done, the extremes of size and dissimilitudes of form and character will leave us in astonishment at the number and variety of Nature's works. If we carry on the comparison to sheep and swine, we shall find the effects of climate as apparent on them as on the horse and ox. In Africa, the sheep are found swift, tall, gaunt, and even bold, with a pendulous dewlap. In Turkey, they are seen with a fleshy rump entirely disproportioned to the other parts. In Persia, this disproportion is translated to the tail, which is said, in some instances, to weigh fifteen or even twenty pounds. In Iceland, sheep are found with three or more horns; in Wallachia, with two only, but those are long and spiral; and in Kamtschatka they also have horns of an enormous length, but without convolutions. In northern countries the sheep are diminutive; but in temperate climates they arrive to a great size and weight. In swine, the variations, in size at least, are equally disproportionate. In England the hog has attained to the following extraordinary proportions: length, three yards eight inches; height, four feet and a half; weight, seven hundred pounds. In China, on the contrary, he measures from eighteen to twenty inches in height, and in some parts of India he is still smaller. In Piedmont, swine are black; in Bavaria, red; and in Normandy, white: and, as a further proof of the effect of locality on them, it is observed, that the breeds originally removed to Cuba are become twice as large as those first taken there. Need we, therefore, seek for a varied parentage for the dog, although a specimen is shewn in the Dresden Museum, that at its death, which occurred when it was two years old, measured only five inches and a half in length, the precise extent from the corner of the eye to the tip of the nose of the great Saxon boar-hound. Man himself has varied from two feet to eight and a half in his height.

Domestication is no less an important agent in the alterations it produces on those animals, because it subjects them to have

their food selected, their exertions forced or restricted, and their temperature raised or diminished at the will of the owners. Variations produced by these united means would offer to man the temptation of perpetuating them, which he would do by regulating the sexual intercourse, and propagating from such duplicates only as approached a given form. In other instances an accidental variation occurred, or a singular deformity was seized on and propagated by future similar selections, until it became permanent, and then it constituted a breed. To something of this kind we owe the wry-legged terriers, so useful in the shooting of rabbits. It is probable, also, that a crooked mastiff offered the foundation for the bull-dog breed.

I have thus far principally treated of the form and varieties of the dog: I would fain say something of his *qualities* also, that I might thereby more effectually advocate his cause; and that, by exciting inquiry into his real character and virtues, I might awaken a due consideration for him in the minds of those (of whom there are but too many) who now regard him with indifference, perhaps with contempt, or it may be with aversion. It is probable that such feelings arise, in many, less from the natural impulses of the heart, than from a mistaken opinion of the actual rank that these animals ought to hold, by their services, their endearing qualities, and the entertainment they afford. If it were customary to consider the higher orders of brute animals in general not as mere machines, endowed with instinctive faculties only for the mere preservation of their existence and extension of their species; but, on the contrary, if they were universally regarded in their true light, as beings highly intellectual, actuated by the noblest passions, endued with memory and recollection, disposed to imitation, profiting by experience, and acquiring skill from discipline and instruction, then we might hope to see them properly estimated, their importance acknowledged, and their treatment amended. The properties here detailed are, in some degree, common to all; but in the dog they shine with a lustre that none but those who study the animal can be aware of. We owe something also of the con-

tempt in which dogs are held to the figurative language derived from eastern writings, both sacred and prophane. "You dog!" is a common term of reproach used towards those, as well as by those, who have not half the virtues of one; yet in uninformed and in unreflecting minds, this metaphoric sarcasm serves to beget contempt, both for the original and the portrait. Our oldest writers, with whom every thing vile and base is *doglike*, are full of this imagery. Even the sacred writings, abounding in the sublimest precepts of humanity, have added their share of obloquy and reproach, which sinks deep in many minds, and begets a traditional contempt and ill-will towards one of the most deserving animals of the brute creation. To combat these popular sources of inhumanity, I have before observed, no means seem so well calculated as to place the subject of our inquiry in his proper point of view, which is not that of a mere instinctive machine, but that of an intellectual being, and that of one who uses his mental and bodily powers principally for the good of mankind.

For the *rationality* of the dog I am almost ashamed to contend, the proofs are so numerous; and yet there are those who deny it him, in the face of the ablest philosophers and metaphysicians, who have clearly allowed him this distinction; but the *extent* of his reasoning powers has occasioned great diversity of opinion among them also. Much, however, if not all, of this discordance has arisen for want of a precise idea of that inherent property we name *instinct*, under which general term it has been too common with writers to include the phenomena of *reason*. It is foreign to my present purpose, if it were within the reach of my ability, to enter on a metaphysical inquiry into the faculty of reason. It will be sufficient if I attempt to analyse the property of *instinct*: in doing which, if I should be enabled to prove that innumerable actions performed by dogs are not at all referrible to this quality, I shall have compassed my object; for if such actions are not *instinctive*, they must be *rational*.

Instinct may be defined to be, that property in animals by which such actions are performed as immediately tend to the *pre-*

servation of themselves and the *propagation* of their species. It is a principle that may be considered as inherent in the organization of an animal body, by which, without instruction, deliberation, or experience, it is *urged* to do whatever is immediately necessary for its self-preservation, and the continuance of the species. It develops itself (contrary to reason) in full perfection as soon as it is wanted. The young chick, the moment it is disencumbered of its shell, dexterously picks up its food, and judiciously selects it from extraneous matter. The indigent and blind puppy, immediately on its entry into the world, searches out the mammillary processes that yield its nutriment, and adapts the surfaces of its little mouth to exhaust the gland, with more dexterity than the most acute philosopher aided by every mechanical principle could do. The operations of instinct being directed to the preservation of existence and the continuance of the species, it was necessarily given *perfect*, or these ends would not have been answered; but as its operations seem confined wholly to these great ends, so it is very limited in its scale of action, and admits of little, if any, improvement. In domestic as well as in unreclaimed animals, such actions as are directed to the essential laws of *preservation* and *propagation* remain always alike: the same general aptitudes, the same dexterity in catering for their food, excluding their enemies, and fostering their young, were as apparent two thousand years ago as at the present day. The *instinctive principle*, as a purely preservative one, was originally given to them perfect; it therefore required no extension, and it has received none.

If this definition of *instinct* should be considered correct (which the more I consider the matter the more I am convinced that it is so), it will require but little observation on any of the higher orders of animals around us, but of quadrupeds particularly, and of these the dog more especially, to force conviction on our minds, that innumerable actions are daily performed by them, all of which are totally unconnected with either of these

great instinctive principles. It must be, therefore, self-evident, that all such actions must be extra-instinctive, and the result of *rational* operations of the brute mind. In the dog these intellectual phenomena present themselves in infinite variety, and the impulses whereby they are directed seem equally diversified; but my limits will not allow me, in this edition, as in the last, to bring forward illustrative anecdotes in proof of these positions; and they are the less necessary, as most of them have been copied into various publications. A very excellent collection of this nature has been made by Capt. Brown, and to the perusal of which I would strongly recommend any sceptic on either the utility, the virtue, or the intellectuality of the dog. He is confiding, and obedient in the extreme. His bravery is well known, and it is admirably set off by his mercy, which to a conquered or to a lesser foe is often very remarkable. Most faithful and disinterested, no temptation can make him desert his master, or his property especially entrusted to him. In the exercise of these proofs of his fidelity, all danger is disregarded; even the pressing calls of cold and hunger are not sufficient to make him abandon his duty; and the pages of history are fraught with well-authenticated accounts, where actual starvation has overtaken him when thus employed. This is no exaggerated picture, but a true portrait of the *Dog* as he is usually found, and the very few instances of darker shadowing, universally frail as we are ourselves, ought not to lessen our due appreciation of the mass. Such being the case, can we treat an animal of his worth with too much consideration and kindness? Are we not as well bound by duty as by interest, to foster him with care, to protect him from harm, and to administer to his wants in sickness; and yet is he in general so treated? On the contrary, is he not neglected by one half of mankind; and by more than a half of the remainder is he not despised and ill-treated? Were it otherwise, pages written in illustration of his history; on the cultivation of his varieties; and the improvement of his talent, would be considered as honourable offerings to society: neither would the

human surgeon, in turning aside from the higher duties of his profession, to describe the numerous diseases, and to detail successful methods of combating them in him, as well as in the horse, be considered as having, in the smallest degree, compromised either his professional or personal respectibility. It ill accords with the boasted "march of intellect," that the study and improvement of any branch of philosophy should do other than elevate the professor of it. "They manage these things better in France." Justly convinced, that whatever is useful and humane is honourable also, this enlightened nation encourages brute medicine to the utmost, by the erection of colleges, the appointment of professors, and the granting of diplomas to its students, who then move in honourable competition and association with the practitioners of the parent art.

PART THE SECOND.

THE REPRODUCTIVE SYSTEM;

OR THE BREEDING AND REARING OF DOGS, THEORETICALLY AND PRACTICALLY CONSIDERED: WITH THE GENERAL TREATMENT OF THEM, BOTH AS PREVENTIVE AND CURATIVE OF DISEASE.

THE *breeding and rearing* of dogs are important considerations, both to the rural economist and the sportsman: the subject is also intimately connected with their medical treatment; for there are particular diseases attendant on both mother and offspring while in a state of mutual dependance on each other. The reproduction of the animal form is brought about in dogs by desires that are not constant, but which among the wild breeds occur about once a year: in domesticated dogs, on the contrary, as shelter and nourishment under the fostering care of man are present at all times of the year, so the periods of their œstrum, or heat, return at uncertain intervals of six, seven, or eight months, as confinement or highly stimulating food may hasten the sexual excitement[1].

The *heat* or *œstrum* of bitches is the consequence of a sympathetic action between all the organs concerned in generation,

[1] It has been attempted to bring on the sexual appetency or *heat* in bitches by stimulating injections, and it now and then succeeds: but as it is an unnatural process, and as the constitutional sympathy cannot be supposed to be so fully excited as to produce a general consent of parts, impregnation does not always follow the intercourse, and, when it does, the progeny are sometimes affected by it, proving weak and unhealthy. I once saw a litter thus artificially urged into life, where every one was ricketty.

which at these times become more highly susceptible and vascular, as is shewn by tumefaction of the external parts, and a discharge from the vulva. There are likewise strong marks of general excitement throughout the body; the plethoric and irritable state of which is such, that those bitches that have been before subject to fits, are now peculiarly liable to them; and convulsions often appear at this time in those that have not before been affected by them. It is evident, therefore, that the precautions of cooling food, judicious exercise, and opening medicines, are necessary at these periods, for the young and delicate particularly; and they are still more so for such bitches as are intended to be debarred from the dog; for, in these latter cases, their excitement remains long in action, when they are deprived of the satiety of sexual intercourse.

Bitches should therefore be allowed to breed, nor is it good for their health to prevent it; for nature almost invariably punishes extraordinary deviations from her established laws, of which the reproductive system is one of the most important. Breeding, therefore, is so much a healthy and necessary process, that bitches prevented from it rarely remain unaffected by disease, and more particularly those whose confined and luxurious lives especially require the aid of such outlets to the superabundance of the system as are opened during the processes of breeding and rearing of young. In such, barrenness is particularly hurtful, and greatly assists in producing, sooner or later, enormous and diseased collections of fat either universal or partial. The partial collections frequently shew themselves by a swelling on each side of the loins, the consequence of a deposit of adipose substance around each ovaria. In other cases, particularly where barrenness is occasional only, the mammæ, or milk glands, become affected with small indurations; which are apt eventually to end in confirmed scirrhi or open ulcers. *See* Scirrhous Diseases of Glands, *Class* V.—A more immediate evil likewise often awaits the preventing of the sexual intercourse, which is, a troublesome accumulation of milk in the mammæ, or teats; for the various organs of generation have such a sympa-

thetic connexion with each other, that when females are denied the dog, still, when the customary period of gestation or going with young has passed, milk will nevertheless appear in the lactiferous glands. This sometimes occurs to a very considerable degree, and occasions much heat and distention. It is more particularly observed in such females as have already had young ones, and they invariably suffer most in the future privation. In such cases, it is proper gently to press out the milk daily, which will greatly relieve the animal; the teats should also be frequently bathed with a mixture of brandy and vinegar a little weakened with water. Food should be given sparingly, and that of a vegetable nature is best; strong exercise should also be encouraged, and an occasional dose of physic will prove useful. The author of an elegant *Treatise on Greyhounds* (whose opinion, as an observant sportsman and breeder, ought to have due weight), remarks, that where breeding has been *always* prevented, he has never found any injurious effects whatever to follow from it. It is undoubtedly true, and it accords with my own experience, that the constitution having once been subjected to the reproductive process, or, in other words, that it is in those which have been once allowed to breed, that the injurious consequences are most observed; in every instance they are more liable to suffer from the future deprivation of it than those in whom the constitutional sympathies have never been fully excited throughout the generative system. It may also be remarked, in answer to the above statement, that sporting and other dogs accustomed to moderate feeding and regular exercise (which are evidently those Sir W. C. draws his inferences from), will bear this deprivation with much greater impunity than those that are more confined and altogether more artificially treated. But as a law in the animal economy, and as one applicable to the general state and constitution of the dog, the reproduction of the species is a necessary, a natural, and, consequently, a healthy process; and the theory is borne out by the fact, for attentive observation *extended to all the varieties of the species*, will shew, that the suffering of bitches to breed, not

only tends to keep them in health, but that those which have been allowed to bring up numerous litters, have more invariably attained a great age than such as have been debarred the intercourse. It may be added, that the same is observed in the human, where the average of longevity among females is decidedly in favour of the married, compared with the single.

Bitches in heat are very cunning, and often elude all but the greatest vigilance in their attempts to escape in search of a mate; and thus, for want of due caution, many frustrate the hopes of their owners in the desired breed; and many others meet their death by becoming lined by a dog so extremely disproportionate in size that the mothers are found unable to bring forth. When, therefore, a bitch has so escaped, it will be prudent immediately to follow her; not only to prevent the intercourse altogether, but to guard against the brutal folly of boys and others, who, when it has taken place, often throw cold water over the animals, or tear them away from each other by violence. I have seen the parts of the female actually suffer inversion from this: other injurious consequences have also very frequently followed[2]. To the dog, likewise, it is no less hurtful, by fatally rupturing the bloodvessels of the parts[3], or by other lacerations.

Impregnation takes place sometimes at the first copulation, in others not until the second, third, or fourth; and in some cases I

[2] Brutal as is the practice of spaying in ordinary cases, it would be admissible, in an instance where it was known that a very favourite and very small bitch had copulated with a very large bony dog; for in such case, as little risk would attend the operation of spaying, judiciously performed at a proper time of the pregnancy, but extreme risk would be incurred by waiting the natural time of bringing forth, so it would be very proper to have it done. See *Spaying, among the Operations, Class* XII.

[3] This retention of the male within the female parts after the act has been *apparently* completed, arises from a peculiarity of structure in both. In the male, the corpora cavernosa have two large lateral protuberances, which, when distended with blood, effectually retain the penis within the vagina of the female, till the venereal orgasm has entirely ceased. The clitoris of the female also partakes of a similar structure, and firmly retains the penis *in coitu* by a protuberant ring, which then closes firmly on it. The same structure is apparent in all the canine congeners.

have known, from decided proofs, that impregnation did not ensue until the seventh warding. Dogs should be suffered, therefore, to remain together some days to insure prolific intercourse. This protracted period, however, applies more particularly to pampered and tender dogs; those which live less artificially, as sporting and rural dogs, conceive usually at the second or third warding. During gestation, dogs do not appear to suffer much derangement of system; some, however, appear to be listless nauseated, and averse to particular foods; and most of them are more thirsty at this than at other times. It is not easy to detect whether bitches are in pup until the fourth or fifth week after warding; about which time the teats enlarge, the flanks fill, and the belly assumes a fulness and rotundity unnatural to it at others. Towards the seventh week, the belly becomes pendulous, and the future increase is not so observable as the previous. In the last week of pregnancy, the contents of the belly seem to incline backwards, the vulva increases in size, and a slimy matter (to soften and lubricate the parts) often issues. Pupping usually comes on the sixty-second, sixty-third, or, at farthest, on the sixty-fourth day. A quarter or half an hour, and sometimes a longer time, intervenes between the expulsion of each fœtus. I have known a solitary puppy appear on the seventieth day from the last intercourse, and that in a case where superfœtation was improbable. *See* PUPPING.—During the pregnancy of bitches, particular care should be taken to observe, and to remove, any appearance of mange or other affections of the skin and surface: if this be neglected, the progeny will be brought into the world with an hereditary taint that no future endeavours can wholly eradicate.

Dogs are certainly capable of superfœtation; that is, impregnation may take place at more than one warding, and that by distinct mates. The fact was long ago admitted by naturalists and physiologists[4]; since which time numerous circumstances

[4] In the superfœtation of brutes, is there not reason to suppose that the germ is contributed from each ovaria in succession? or do the ova or germs present themselves indiscriminately from both? The interesting experiments of Dr. Haighton, related in the *Philosophical Transactions*, 1797, p. 159;

have fallen under the notice of sportsmen that confirm the matter. I have, in several instances, seen whelps of the same litter with appearances which bore evident marks of different origin, and where the future disproportion in size, with all the distinctive marks of varied species, clearly evinced that more than one male was concerned in the process.

Antecedent impressions received have often an effect on the progeny.—Superfœtation is apt to be confounded with, or its phenomena are sometimes accounted for by, another process, still more curious and inexplicable, but which is wholly dependent on the mother; where imprintings which have been received by her mind previous to her sexual intercourse are conveyed to the germs within her, so as to stamp one or more of them with characteristic traits of resemblance to the dog from which the impression was taken, although of a totally different breed from the real father of the progeny. In superfœtation, the size, form, &c. of the additional progeny all fully betoken their origin. In these instances of *sympathetic deviation*, the form, size, and character are, in most, principally the mother's; but the *colour* is usually the favourite's, with, perhaps, a few characteristic blendings of external resemblance intermixed. It would appear that this mental impression, which is perhaps usually raised at some period of œstrum, always recurs at that period, and is so interwoven with the organization even, as to become a stamp or mould for some if not all of her future progeny; the existence of which curious anomaly in the reproductive or breeding system is confirmed by acts of not unfrequent occurrence. I had a pug bitch whose constant companion was a small and almost *white* spaniel dog, of Lord Rivers' breed, of which she was very fond. When it became necessary to separate her, on account of her *heat*, from this dog, and to confine her with one of her own kind, she pined excessively; and notwithstanding her situation, it was some time

and by Mr. Cruickshanks, *ib.* p. 197, tend to throw light on this curious subject. Superfœtation seems extended also to the human; instances of this are recorded in Blumenbach's *Institutions of Physiology*, and in White's work on the Regular Gradation of the Human Race.

before she would admit of the attentions of the *pug* dog placed with her. At length, however, she did so; impregnation followed, and at the usual period she brought forth five *pug* puppies, one of which was elegantly *white*, and more *slender* than the others. The spaniel was soon afterwards given away, but the impression remained; for at two subsequent litters (which were all she had afterwards) she presented me with a *white* young one, which the fanciers know to be a very rare occurrence[5].

[5] It is a curious circumstance, that each succeeding white puppy was less slender in form than the preceding, though all were equally white; which shewed, as I have before stated, that this mental influence extends less perfectly to the individual form, than to its external characters, particularly of colour; and also that it lessens by time and absence. When, therefore, pups of completely different forms and kinds proceed from one litter, superfœtation has occurred, and not mental influence. The Rev. R. Lascelles, in his *Letters on Sporting*, p. 250, relates a case of a greyhound bitch, entrusted to the care of a servant, which whelped one perfect greyhound and six complete curs: the curs were the likeness of the dog she domesticated with in common; the single one resembled the greyhound she was taken to during her heat. There is little reason, therefore, to doubt that the bitch had been previously lined by the cur, and the single greyhound pup was the effect of superfœtation. I mention this to shew how easy this mistake between two different causes may occur, and how they may be distinguished. I was not fortunate enough to rear either of my white puppies: the late Lord Kelly offered me fifteen guineas for one of them at three months old.

Lord Morton bred from a male quagga and a chesnut mare. The mare was afterwards bred from by a black Arabian horse; but still the progeny exhibited, in colour and mane, a striking resemblance to the quagga. D. Giles, Esq. had a sow of the black and white kind, which was bred from by a boar of the wild breed, of a deep chesnut colour: the pigs produced by this intercourse were duly mixed, the colour of the boar being in some very predominant. The sow was afterwards bred from by two of Mr. Western's boars, and in both instances chesnut marks were prevalent in the litter, which, in other instances, had never presented any appearance of the kind. *Phil. Trans.* 1821.—The former cases tend to confirm what I have before remarked, that the mental influence excited on these occasions extends less to the internal organization than to the external characters of colour and covering. The following will, however, shew, that impressions from terror may sink so deep as to affect the organization also of the progeny. In the Linnæan Society of London is found an account, by Mr. Milne, of a pregnant cat, his own property, the end of whose tail was trodden on with so much violence, as, apparently, to give the animal intense pain. When she kittened, five young ones appeared, perfect in every other respect except the tail, which was, in each one of them, distorted near the end, and enlarged into a cartilaginous knob.—*Lin. Trans.*, vol. ix, p. 323.

The late Dr. Hugh Smith used to relate a similar instance which occurred to a very favourite female setter that often followed his carriage. On one occasion, when travelling in the country, she became suddenly so enamoured of a mongrel that followed her, that, to separate them, he was forced, or rather his anger irritated him, to shoot the mongrel, and he then proceeded on his journey. The image of this sudden favourite, however, still haunted the bitch, and for some weeks after she pined excessively, and obstinately refused intercourse with any other dog. At length she admitted the caresses of a well-bred setter; but when she whelped, the Doctor was mortified with the sight of a litter which he perceived bore evident marks (particularly in colour) of the favoured cur, and they were accordingly destroyed. The same also occurred in all her future puppings: invariably the breed was tainted by the lasting impression made by the mongrel. It is, therefore, evident, that to ensure a select breed, too much care cannot be taken to render the choice of the male agreeable to the female; and also, that where a female of a very valuable breed has been long habituated to any favourite male companion, and which it is not intended she should be allowed to breed by, that it is advisable to separate them even before the œstrum or heat of the bitch comes on, which will prevent the disappointment that might otherwise occur.

Like begets like, is the dog-breeder's axiom; and when the anomalies noticed do not interfere, the produce of a connexion between dogs of a similar breed usually exhibits traits of individual resemblance to each, united with the characteristic marks common to the breed in general. Sportsmen incline to the opinion, that the male pups are more strongly tinctured with the external form of the father than of the mother, and *vice versâ;* but though instances may occur to favour such conclusion, it is not a uniform occurrence. When the parents are of different breeds[6], the varying outlines of each are usually softened and

[6] When dogs of different breeds are brought together, the progeny are said to be a *cross.* Thus, pointers are sometimes *crossed* with foxhounds, to in-

blended in the progeny, in nearly equal proportions[7]. But this division of parental character is not always equal: it sometimes happens that the more notable characteristics of form, size, and qualities, and even of sex, are principally derived from the male parent[8]. In others a stronger similitude to the mother is apparent; and it now and then happens that these partialities seem to

crease their speed and ardour. The effect of these crosses is retained to the seventh or eighth generation: among turf sportsmen it is supposed to exist, in horses, to the twentieth successive descendant.

[7] These blendings of the individual character of each parent are illustrated by hybridous animals: how easily traced, and yet how blended into a whole, are the characters of the horse and ass, as observed in the hybrid mule! These hybridous productions also completely disprove the opinion some physiologists have formed, that the male parent, in the procreative act, imparts nothing beyond the mere stimulus of life to the ovum or germ of the female; for it must be evident that the germ in the mare is naturally of the horse species; and did such germ merely receive the vivifying principle by the sexual intercourse, it would be indifferent to the future produce whether the father were a horse or an ass.

[8] Some physiologists (and among them Sir E. Home) have supposed that the ovum or germ, previous to impregnation, is of no sex, but is so formed as to be equally fitted to become a male or female fœtus, and that it is the process of impregnation that marks the sex, and produces both male and female generative organs. However this opinion may seem to be supported by facts, and although instances do occur that give reason to suppose that the male parent has considerable influence in determining the sex, yet others arise to prove the female to be equally concerned in this matter. It is true that some dogs, some stallions, and some bulls, are remarked for begetting a greater number of males than females; while others are the parents of more females than males. In the *Phil. Trans.* 1787, p. 344, mention is made of a gentleman who was the youngest of forty sons, all produced in succession, from three different wives, by one father, in Ireland. But it is, at the same time, equally notorious, that some bitches, let them breed by what dog they will, yet still have a plurality of one sex. The same occurs, in a much greater degree, among other domestic animals. Mr. Knight remarks on the equal aptitude in the female in determining the sex: "In several species of domesticated animals (I believe in all), particular "females are found to produce a majority of their offspring of the same sex; "and I have proved repeatedly, that, by dividing a herd of thirty cows into "three equal parts, I could calculate with confidence upon a large majority "of females from one part, of males from another, and upon nearly an equal "number of males and females from the remainder. I frequently endeavoured "to change the habits by changing the male, but with success."—*Phil. Trans.* 1809, p. 397. In *King's Langley* church are the effigies of seven successive daughters born to a man by his first wife, and of seven sons born to him by a second wife, in succession.

be confined to a part of the progeny only, or is divided between the parents. This is sometimes observed when a breed is made between a pointer and setter, in which case it has not unfrequently happened that a part of the litter has produced nearly thorough-bred pointers, while the remainder have proved well-bred setters.

Breeding back, as it is popularly called among sportsmen, is not one of the least curious, nor one of the least important among the phenomena which attend the reproductive system. If it were not for the irregularities lately pointed out, which occasionally occur by mental influence, we might be led to conclude that a *family character* was originally imprinted on the generative organs, or that the ova or germs of the future race were formed after one common *hereditary mould;* for it is often observed, not only among dogs, but among other domestic animals, and even in man also, that their progeny bear a greater resemblance to the grandam or grandfather than to their immediate parents. It is evident that this is more likely to happen where a common character has been preserved during successive generations, or, *in turf language*, where the *blood* has been kept *pure;* which is nothing more than an established variety, being acted on in its successive generations by the owner, in the direction of the sexual intercourse, the selection of food, discipline of qualities, and regulation of habits.

That we may not, however, attribute principles to nature which are, perhaps, much under the influence of art, it will be prudent to recollect, that, in a philosophical point of view, we have no such thing as a *pure* breed among any of our domestic animals. Our most boasted specimens are either altogether degenerates[9],

[9] A more close examination of the subject will shew not only that our most highly prized animals are *degenerates*, but that many of them are *monstrosities*. Degeneracy, among naturalists, is a departure from originality and a state of nature; thus, philosophically, wild animals only can be considered as perfect. But man, to gratify his artificial wants, has cultivated forms and properties in them, which, however they may prove beneficial to himself, render the animals subjected to such alterations unfitted for the purposes they were originally

or produced from congenital varieties; the native and original types are mostly unknown to us. In tracing the natural history of the dog, we must feel convinced that what we call *breeds* are but varieties which have been generated by various causes, as climate, peculiarity in food, restraint, and domestication. Man, active in promoting his own benefit, has watched these gradual alterations, and has improved and extended them by aiding the causes that tend to their production, and by future care has perpetuated and made them permanently his own.

Many of the varieties among dogs and other domestic animals

destined for. What would become of some of our cultivated breeds of dogs, were they turned loose in a wild country? Could a pack of pugs hunt down the antelope; nay, could they even subsist in a state of nature? The high-bred greyhound's speed and vision united would fail in the same circumstances; deprived, as he would find himself by *cultivation*, of the means of following his prey through its various windings by *scenting* his course. The pointer might *stand*, and his partners might *back* him, until they became together converted into monuments of devotion to an artificial excellence which had converted them into a group of mummies: the pursuits of their cultivated talent would infallibly starve them.

As promoters of the ease and comforts of mankind, every one yields the well-merited honours that are distributed among our enterprising cattle breeders; but the philosopher, retired from the world, and the naturalist, contemplating his subject freed from extraneous bearings; they regard the boasted excellencies of our domestic animals in general as monstrosities. The majestic large breed of heavy cart horses, cultivated to their present stature by the luxuriant nature of the herbage in this and some other countries, would be ill calculated to save themselves from beasts of prey, by either flight or active resistance: their immense weight would sink them in loose soils, that their more agile originals would bound over with instinctive celerity; and the scanty herbage in nature's wilds would ill suffice their multiplied wants. With the ox and sheep a constitutional obesity is encouraged, until the fat and muscular parts are totally disproportioned to the bony mass that is to support them, which lessens, according to modern excellence, in an inverse proportion to its necessities; and, as though the degeneration was not sufficiently pursued, in the polled breeds those original marks of distinction and safety, the horns, also yield to the sacrifice. Even the finest edibles among our garden bulbs, as the carrot, parsnep, &c. &c. are monstrosities, enlarged at the expense of the stem and other parts; and the disproportionate magnitude of our fruit is attributable to the monstrosity of the pericarp. It is not attempted to argue that these are not actual advantages to mankind, nor to detract from the merit that has introduced these acknowledged *improvements*; it is merely suggested to shew that misconception and mis-appropriation of terms often arise according as the subject is viewed by the naturalist or the rural economist.

are the effect of *monstrosity*, or have arisen from some anomaly in the reproductive or breeding process. When these accidental varieties have exhibited a peculiar organization or form which could be applied to any useful or novel purpose, the objects have been reared and afterwards bred from; and when the singularity has been observed in more than one of the same birth, it has been easy to perpetuate it by breeding again from these congeners, and confining the future intercourse to them. To these accidental variations from general form and character among dogs we are to attribute our most diminutive breeds, our pugs, bull-dogs, wry-legged terriers, and some others[10]: our general breeds are, however, rather the effect of slow cultivation than of sudden and extraordinary production.

It has been before observed, that every variety or breed has a tendency to degenerate, or travel backwards to something like the original standard: this tendency is greatest in the accidental varieties or breeds just hinted at, in which a few succeeding generations[11]

[10] Among other domesticated animals, prominent instances present themselves of accidental variety. The solidungular breed of swine, with their undivided feet, and the ancon or otter breed of sheep, described by Colonel Humphries, in *Phil. Trans.* for 1813, part i, may be noticed in proof. These sheep were derived from the accidental deformity of one American lamb, born with legs most disproportionately short to the rest of his body, which deformity, added to great crookedness of the fore legs, rendered him unable either to run or to break fences. With these qualities it was determined to attempt a breed of this kind; and, by confining the intercourse between him and his future offspring, it succeeded, and the ancon or otter breed is now established. The pure milk-white breeds which we witness now as permanent among ferrets, rabbits, mice, &c. originally sprang from one accidental variety of each. Man himself is not exempt from this departure from established form and character, as we witness in the Albino, who presents the same leucœthiopic constitutional characters in the deficiency of colouring matter, a similar redness of iris and pupil, and consequently the same intolerance of light, as the other white animals. There have been, and still exist, six-fingered families; and Mr. Lawrence informs us that the thick lip, yet visible in some noble Austrian families, was introduced by the marriage of the Emperor Maximilian with Mary of Burgundy. I have myself seen, in Sussex, a breed of tailless cats.

[11] Lord Orford bred between a bull-dog and a greyhound: in seven descents all traces of the cross were lost in form; but he conjectured that he had gained an acquisition of courage and determination. Probably an accidental deformity might have disappeared sooner.

is sufficient to destroy all appearances of variation from the original; but in breeds more nearly approaching the original, as well as such as have been long established, it requires a much longer time wholly to degenerate them. The tendency to resume the original type is, however, inherent in all our domestic animals, and in none more than the dog; and judicious efforts employed to counteract this property form a principal part of the art of successful *breeding* in rural economy.

Notorious *varieties* or *breeds* are, therefore, the consequence of our attempts at the improvement of such races of dogs, or of any other domestic animals, as exhibited a constitutional tendency to a particular form or character, the properties of which are either known or expected to prove useful. Or they originate in the adoption of any accidental variety that may spring up in the way lately described. Or a breed may be established by any determinate form or quality, within certain limits, being previously fixed on; after this individuals are selected, perhaps not exactly similar, but each of which having distinct points of resemblance to the desired form, conjointly, the full end may be gained in their own union and that of their affinities. In this way the most surprising alterations in the animal character have been, and still may be, brought about; and forms almost ideal have been, and still may be, realized[12]. A breed or variety being adopted and established, its permanency must depend on the care bestowed not only in selecting proper individuals to propagate from, but also in the adoption of such other circumstances as tend to preserve the animals themselves in that state the nearest approaching to

[12] Among the experienced fanciers of the small yellow and white spaniels, which much resemble those known by the name of the *Marlborough* breed, this is particularly exemplified. These elegant animals are very common among the *Spitalfields* weavers; and to such a perfection have they brought the art of breeding them, that it is affirmed they can insure, almost to a certainty, the requisite quantity of colour, the length of coat, its texture, and its disposition to curl or to remain straight. The *Herefordshire* ox can be bred to a white or a half white face; and the horns of some breeds can be insured to an inch. The colour of the game cock is arbitrarily imposed by the handler and feeder; and the experienced pigeon-fancier can breed to a feather.

what has been established as the standard. These circumstances include choice of situation, proper food, due exercise, with judicious restraint and discipline. The aids we should lend to perpetuate a diminutive race would be, close confinement, artificial heat[13], and sparing food. Were our attempts directed to the external covering, artificial warmth would render it thin and fine; while, on the contrary, exposure would thicken and probably lengthen it. If great size exists, and we wish to continue or increase it, we should allow but one or two young to remain in a litter; we should not only feed the mother liberally, but it would be proper early to accustom the young to eat of animal food also: adding to all these, the free access of air, ample room, and opportunity for full exercise, But, above all, the permanency of a breed must depend on the judicious selection of individuals as parents, which, having the specified and definite form in the greatest degree, are enabled in their progeny to perpetuate the same. This care, when *long continued,* of confining to particular races or breeds the means of continuing their species, constitutes what is termed *purity of blood.* Immense importance is attached to this purity of blood, or lineal descent, amongst the breeders of almost every kind of domestic animal[14]. The scientific sportsman acknowledges it, in its fullest degree, in

[13] The French are said to give their diminutive breeds spirituous liquors when they are young, to stop their growth: if it has this effect, it is because artificial heat and a quickened circulation produce premature development of the frame, and thus promote an early puberty.

[14] The care taken by the Arabs in preserving the breeds of their horses is most remarkable. None but stallions of the finest form and *purest blood* are allowed access to their mares, which is never done but in the presence of a professional witness or public officer, who attests the fact, records the names, and signs the pedigree of each. The Circassians distinguish the various races of their horses by marks on the buttocks. When a noble mark is put on an ignoble breed, the forgery is punished with death. *Pallas's Travels in the Southern Provinces of the Russian Empire*, chap. 14.—In *Persia*, almost equal ceremony takes place when a breed is undertaken between some of their most highly-prized dogs. In England, stallions have been sold for 1000 guineas, bulls for 300, and rams for the same. The celebrated Yorkshire greyhound, called *Snowball*, lined bitches at three guineas each. Such estimation is purity of blood and regularity of descent held in.

the genealogy of his dogs; and experience teaches him that a certain degree of perfection, once gained, can only be continued by successive propagation from the blood or same stock.

In our selection of parents for multiplying a *breed* a variety of circumstances should necessarily engage our attention; as, whether we are continuing a race already established, improving a defective one, or altogether forming a new variety. In either case, but particularly in the two latter, one or two propagations are not sufficient to enable us to judge of the merits or demerits of the products: anomalies may occur, monstrosities appear, or our dogs may breed *back*. It should likewise be always present to us, that, in despite of all our care, and in face of the most favourable opportunities for selection, still *perfect specimens* to propagate from are unattainable; and as, therefore, we are necessarily to expect defects, it should be our care to well examine that we do not select our male and female parents with each the same faulty form or property; for, however perfect they may be in other respects, they are, in such a case, totally unfit to breed from together. We may, for instance, suppose an otherwise eligible pair of pointers, of the purest blood, but that each, from early and constant confinement, had contracted long, weak, spreading phalanges or toes, instead of a round, cat-like form of foot. By choosing a mate for each of these whose feet were unusually small, round, and firm, we might remedy this defect, and preserve their excellencies; but it would be only propagating deformity to breed from them together. We can only expect to prove successful in rearing a superior race of any domestic animal, when we make our selection of parents with a careful reference to the merits and defects in each, by balancing the one against the other, and by thus combining their different properties. It is by inattention to these circumstances that so many persons, after giving immense prices for animals of particular stocks, have found themselves foiled in their attempts at rearing any thing beyond mediocrity, which animals under the judicious management of a Russell, a Coke, or an Ellman, among cattle,

or an Orford, a Meynell, a Rivers, or a Topham, among dogs, would have produced unrivalled forms.

It is no less to be understood, that it is not the form only that we can alter or bring into an hereditary line; the aptitudes and qualities may also be cultivated and made to descend in succession equally with the external form. Temper, sagacity, and aptness to receive instruction, are all hereditary, and are all equally to be taken into the account by a breeder. Some breeds of pointers require little breaking, but the first time they come on game they exhibit the required properties with nearly the steadiness of an old dog. A common fault is often committed by theoretical and inexperienced breeders, which consists in cultivating a particular quality, or propagating a particular point of form; while, at the same time, losing sight of the integrity of purpose, they deteriorate the aggregate. In this way, fox-hounds may be bred to run nearly as fast as greyhounds, but it is at the expense of their scent, their hardihood, and, I suspect, of their sagacity also. For it cannot be too strongly inculcated on the mind of every breeder, as an established law in the animal economy, that an extraordinary degree of excellence existing in any set of organs, whether it be natural or acquired, is almost invariably accompanied with a privation of the usual quantity of it in some other[15]. This law is fully exemplified in those animals where breeding is carried to its greatest refinement; or, in other words, where cultivation in qualities or form, or both, weakens or destroys the instinctive habits and original structure to such a degree as to make the subjects of it inferior in their reproductive processes, both as *breeders* and *rearers* of progeny; and which appears to extend throughout all our very high bred animals: among the feathered race it is peculiarly remarkable. The higher any animal is bred, the more artificially he becomes placed with regard

[15] Without this compensating principle we might cultivate one race of animals to the total extinction of another. If the greyhound had not lost his power of following his game by scenting it, when his capabilities of overtaking it by agility had been artificially increased to the wonderful perfection we now find it, the breed of hares must inevitably have been destroyed.

to external circumstances, till at length he requires constant care to obviate those contingencies that would be unheeded by others.

Breeding In-and-In.—Among the practical and systematic breeders of all domestic animals, and among none more than those sportsmen who devote themselves to the improvement of the *dog*, a great diversity of opinion has always existed on the subject of *consanguineous breeding;* or of that between near relations, characterised by the term *In-and-In.* The conflicting authorities on the subject are numerous, and the testimonies contradictory; and it is more than probable that they will remain so, until a long course of experiment is undertaken by a body or society of scientific and observant breeders on various domestic animals, for the express purpose of arriving at the truth in this particular. A few solitary or isolated facts can do little to set the subject at rest: theory can only assist by philosophically directing the inquiry aright: truth should be the ultimate object of every pursuit, and, from whatever source it is obtained, it should be embraced. I profess to have had little experience myself as a practical breeder, but I have endeavoured to profit by the experience of others. I am by no means wedded to the *in-and-in* system of breeding; and when I hear grave authorities stating facts (the only sure guides to truth) against it, I am disposed to waver; but renewed examination produces counter statements, and I retrace my steps and become, as formerly, a defender (but, I own, not so zealous one) of *consanguineous breeding*. I will, however, endeavour to state the pro's and con's fairly, and then leave the matter, where it should be left, with the experimentalist.

The first argument that presents itself in favour of multiplication from near relationship is, that the early human and brute races must of necessity have been produced from the nearest affinities; and it is unreasonable to suppose that nature would have set out on a principle tending to the immediate deterioration of her works. This, however, has been called the mere argument of necessity, and is said to apply only to the precise period

when there was no other connexion possible. I admit that this is an argument of necessity, viewed with reference only to primitive times; but it stands otherwise, when we reflect that, for ages after, consanguineous marriages were consummated among nations of refinement, and to this day, among savage tribes particularly, their reigning families and chiefs confine themselves to marriage among lineal kindred[16]; and yet in neither instance has any degeneration been observed. From a parity of reasoning, as we know that an insuperable bar has been placed against propagation among the several genera, by an instinctive aversion, that the specific forms might not be lost in hybridous productions; so it does not appear to be straining analogy too much to suppose that, had ill effects followed from consanguineous intercourse, something like this instinctive aversion would be manifested here also[17]. Neither does it appear, *à priori*, easy to substantiate either moral or physiological reasons why

[16] The Egyptians are said to have allowed of the marriages of brothers to sisters. The Athenians admitted the betrothing of brothers and sisters of the half blood, if related by the father's side. The marriage of Abraham with his sister assures us that it was practised among the Chaldeans; and it may be remarked, that, when this island was conquered by Cæsar, a peculiar system of cohabitation prevailed.—Uxores habent deni duodenique inter se communes, et maxime fratres cum fratribus, parentesque cum liberis; sed si qui sunt ex his nati, eorum habentur liberi, quo primum vurgo quæque deducta est.—*Paley's Nat. Hist.*

[17] It may be argued, that such aversion is manifested in the political restrictions relative to consanguineous marriages among enlightened nations. That such prohibitions were necessary from moral and political necessity is evident; for, by extending the social compact to marriages without the family pale, knowledge and the arts were extended, improved, and became a common property; wealth was diffused, communities were enlarged, and social interests joined those who before were in opposition to each other; and, above all, the demoralizing and depopulating effects of an early departure from chastity, which unreserved family communication led to, was prevented. It is, however, clear, from history and from philosophical investigation, that such aversion is neither instinctive nor necessary, but an acquired regulation of passion, implanted by education, and made general by refinement. Sir W. C—N observes that, according to Varro, this aversion has really occurred even in animals,—Equus matrem ut saliret adduci non posset, *De Re Rustica*, lib. iii, c. 5; but the ingenious Baronet candidly acknowledges that subsequent experience has not justified the assertion.

breeding among lineal kindred should of necessity prove deteriorating to the future progeny, when no family departure from the original type is apparent. The same organization, the same constitutional sympathies, the same aptitudes, when not defective, would tend, under union, to produce a perfect similitude: but facts are infinitely more to our purpose than the most specious arguments.

We are assured, that the Arab horses of high blood are usually bred *in-and-in;* and we know that no people in existence are equally observant of the purity of lineal descent among these animals as they are; and as these horses have maintained their high character for ages, it forms a strong presumption in favour of this system. Mr. Bakewell, whose name will ever rank high as a breeder of cattle, reared his valuable stock wholly from consanguinity: in fact, his important improvements were all founded on this intercourse among kindred, or their affinities. Mr. Meynell, who was no less celebrated as an experimentalist in the breeding of sporting dogs, propagated the whole of his celebrated fox hounds in this manner.

I have already stated, that numerous and powerful opponents exist to the system of *in-and-in* breeding, whose opinions ought to have their due influence when considering the question[18]. Sir John Sebright, who has been long known as a practical breeder and scientific experimentalist, has given us his opinions on the subject, in a Letter on *The Art of Improving the Breeds of Domestic Animals;* and as great importance is justly attributed to his opinions, as there detailed, I shall, in candour, quote so much as is necessary to shew the drift of his arguments. He says, "If "a breed cannot be improved, or even continued in the degree "of perfection at which it has already arrived, but by breeding "from individuals, so selected as to correct each others defects,

[18] The principal arguments, in my own mind, against this mode of increase are, that hereditary diseases, which in some breeds are considerable, are, by this means, perpetuated and probably increased; and also, that when breeding by relationship is a settled practice, the accidental defects are too apt to be passed over unobserved.

" and by a judicious combination of their different properties (a " position that I believe will not be denied), it follows that " animals must degenerate by being long bred from the same " family, without the intermixture of any other blood, or from " being what is technically called *bred in-and-in.*" Against the contrary opinion, as held by Bakewell, the ingenious Baronet thus reasons:—" No one can deny the ability of Mr. Bakewell " in the art of which he may fairly be said to have been the " inventor; but the mystery with which he is well known to " have carried on every part of his business, and the various " means which he employed to mislead the public, induce me " not to give that weight to his assertions, which I should do to " his real opinion, could it have been ascertained." To Mr. Meynell's opinion of the same tendency, he replies—" Mr. Mey- " nell's fox-hounds are quoted as an instance of the success of " this practice (i. e. *the in-and-in*); but, on speaking to that " gentleman upon the subject, I found that he did not attach the " meaning that I do to the term in-and-in. He said, that he " frequently bred from the father and the daughter, and the " mother and the son. This is not what I consider as breeding " in-and-in; for the daughter is only half of the same blood as " the father, and will probably partake, in a great degree, of " the properties of the mother."

Sir J. S. also, in another part of his letter, states some important facts on the matter in these words: —" I have tried " many experiments by breeding in-and-in upon dogs, fowls, " and pigeons: the dogs became, from strong spaniels, weak " and diminutive lap-dogs; the fowls became long in the legs, " small in the body, and bad breeders."

Sir W. C——n, in his *Treatise on Greyhounds*, is also, in some degree, unfavourable to breeding a-kin. He says, " If " continued for some litters, a manifest inferiority of size, and a " deficiency of bone, will soon be visible, as well as a want of " courage and bottom; though the beauty of the form, with the " exception of the size, may not be diminished."

Buffon argues on the same side:—" Ce qu'il y a de singulier, " c'est qu'il semble que le modèle du beau et du bon soit dis- " persé par toute la terre, et que dans chaque climat il n'en reside " qu'une portion qui degénère toujours, à moins qu'on ne la " réunisse avec une autre portion prise au loin ; en sort que pour " avoir de bon grain, de belles fleurs, &c. &c. il faut en én- " changer les grains et de ne jamais semer dans le même terrein " qui les a produits; et de même, pour avoir de beaux chevaux, " de bons chiens, &c. &c. il faut donner aux femelles du pays des " mâles étrangers, et réciproquement aux mâles du pays des " femelles étrangeres; sans cela les grains, les fleurs, les ani- " maux dégénèrent, ou plutot prennent uni si fort teinture du " climat, que la matière domine sur la forme, et semble l'abâ- " tardir, l'empreinte reste, mais défigurée par tous les traits, qui " ne lui sont pas essentiels. En mêlant au contraire les races, et " surtout en les renouvelant toujours par les races étrangeres, la " forme semble se perfectionner, et la nature se relever et donner " tout ce qu'elle produit de meilleur." *Buffon Hist. Nat.* tom. iv, p. 216.—Mr. Beckford, in his *Thoughts on Hunting*, appears equally averse to consanguineous canine breeding. " A very fa- " mous sportsman has told me, that he frequently breeds from " brothers and sisters. As I should be very unwilling to urge " any thing in opposition to such authority, you had better try " it ; and if it succeeds in hounds, it is more, I believe, than it " usually does in other animals."

It remains to add, that many practical breeders of inferior note are averse to propagating in succession from near relationship by blood, as brother and sister, father and daughter, &c. &c. ; but many allow even the benefit of relationship in a more remote degree. This is particularly the case with some rearers of game fowls, who are favourable to breeding from the third remove, which they call a *nick*. From all which discrepancy of opinion may be gained, that the subject is at present somewhat problematical; and, that the opposition to it, if not altogether unfounded, has, nevertheless, not yet received such an accumulation

of striking and incontrovertible facts as to force conviction. One thing it is but just to state, which is, that *breeding in-and-in among dogs*, which is the point more immediately connected with our present inquiry, seems to have more opponents than it has in the multiplication of any other domestic race of animals. Whether it be, that dogs, from their habits of close intimacy with us, afford more opportunities of close observation; or whether there be really an inherent aptitude in them unfavourable to propagation from near affinities, is not agreed on generally; but the prejudice deserves to be fully canvassed by a series of experiments and observations, having for their object the truth, and that only.

THE REARING OF YOUNG DOGS.

To procure the whelping of dogs in the spring is undoubtedly desirable in kennels where many dogs are reared; and in such it is usual to encourage the season of *heat* in the females by liberal feeding, &c., so that the young thus early produced may benefit by the genial warmth of the summer, and expand their limbs by exercise in the open air more freely. The number of young that are brought forth at a birth varies from one to twelve: instances have occurred where sixteen have been whelped, and I once removed the same number from a dead setter: five, six, and seven, are common numbers[19]. How many it is proper for the mother to rear, must depend on circumstances: one that is very strong and healthy may, with full feeding, bring up five: but when the breed is valuable, and great size and strength are required, four, or even three, are more proper: among the delicate breeds no more should ever be allowed. If a foster mother is procured for the supernumerary pups, she should, if possible, be of the same breed with themselves; for from the experience I have had in this particular, I am strongly inclined to believe that the qualities

[19] Albertus relates his knowledge of a mastiff bitch, which littered the vast number of fifty young ones at three consecutive parturitions; viz., nineteen at the first, eighteen at the second, and thirteen at the last.

of a foster mother are, in some degree, transferred with the milk; and when the breeds are distinct, this must be very prejudicial. I am also borne out in this opinion by the testimony of other observant sportsmen[20]. Constitutional diseases may be likewise *gained* by this means[1]. At times, some difficulty is experienced in getting a foster parent to receive strange young: in which case it is usual to sprinkle them with the milk of the bitch they are to be put to: but when even this will not avail, the removal of her own young will commonly excite the feelings of maternity towards the stranger: the former plan is, however, commonly sufficient, acting as it does on a similar principle with that by which shepherds succeed, who when a ewe dies, take her lamb, and, having found a ewe with a dead one, the dead lamb's skin is stripped off by them, and sewed around the living lamb, who is then received by the foster parent as her own. Most animal instincts connected with the reproductive system are conducted by means of smelling.

Puppies are born blind, and remain so for many days; their ears are also impervious. Eyesight and hearing would have been useless to animals so indigent, and which, in a state of nature, were intended to remain buried the first weeks of their existence in holes and dark caverns. These organs only develope themselves when their owners begin to be sensible of their wants: the lids unclose by degrees, and then exhibit a membranaceous covering, or rather a thickened state of the conjunctive tunic; but which gradually becoming absorbed, presents ulti-

[20] The learned author of *A Treatise on Greyhounds* introduces some quotations to shew that this effect had not escaped the attention of the antients. Columella, lib. vii, c. 12, has the following remarks on it:—"Nec nunquam eos "quorum generosam volumus indolem conservare, patiemur alienæ nutricis "uberibus educari, quoniam semper lac et spiritus maternus longe magis in- "genii atque incrementa corporis augent." Similar observations occur in *Xenophon. de Venat.* 987; *Oppian. Venat.* i, 442; *Cynosophium*, &c.

[1] I was acquainted with a very fine child with diseased eyelids, who was the only one thus affected out of a large family; she was likewise the only one put out to nurse. The woman who suckled her had a large family also, and most of her children have the same affection; and I have traced diseases in dogs, and habits also, to the source of foster parentage.

mately a perfect eye. At this early age, the whole skin presents a beautiful pink tinge, which disappears by degrees, and gives place to a clear white in most parts of the body; while the rete-mucosum of such parts as are intended to exhibit a dark hue, as the roof of the mouth, paws, nose, &c., at the same time assumes its intended colour. The upper milk or temporary teeth, both cutting and grinding, appear first, and are tolerably complete at a month old; the others appear later, by which arrangement the teats of the mother do not suffer: the milk teeth give place to the permanent set at six or seven months. The testes do not descend into the scrotum till the third, fourth, or fifth week, but they may be felt a week previously within the abdomen, on each side of the penis. Dogs are often born with supernumerary claws, among sportsmen called dew claws: some of these have a corresponding metacarpal or metatarsal bone, others are appendant only to the integuments. In either case they should be taken off early.—See *Operations.*

When many young of a litter are preserved, they should be early accustomed to lap: milk which has been boiled and slightly sweetened is proper; when given raw it is apt to purge, and sweetening it makes it more nearly resemble the mother's milk. Meat, also, cut fine may be early given, as it will materially save the mother, and benefit the progeny also: clean litter, free access of air, and room for exercise, are essentials to their well doing. Young dogs should be early accustomed to restraint, with a chain and collar; otherwise, when they are accidentally tied up, it is apt to occasion great alarm: I have seen fits follow this. Confinement, however, under any circumstance, should be only occasional, and never long continued: thousands are rendered weak, ricketty, and have their feet spread out into thin narrow phalanges, by close and early confinement.

Young dogs are liable to several diseases that are peculiar to this stage of their existence. One of the most fatal of these is of a *tabid* nature, and appears principally confined to some breeds, particularly to terriers, pugs, the smaller kinds of spaniels, and

others of the diminutive races; and more especially to such as live luxuriously, and are closely confined. Among these, certain individuals at each littering present young, either already diseased, or with such a tendency to it, that the complaint alluded to soon makes its appearance, and with greater certainty when they have to combat with bad air, confined situation, and want of sufficient nutriment.—See *Diseases of Glands,* Class V.

Worms are very common in young dogs, perhaps few are without them; whenever, therefore, puppies have fits, irregular bowels, violent and unnatural appetite, and a general unhealthy appearance, worms may be suspected as the cause.—*Rickets* also are very injurious to them sometimes, particularly among the breeds that are closely confined, as in cities and large manufacturing towns. See *Diseases of Bones,* Class VI. Young dogs are also liable to a peculiar spasmodic affection of the bowels. I have seen it epidemic among them. See *Spasmodic Colic,* Class II.

The age of dogs.—These animals do not, like horses and cattle, present any exact criterion of their age; nevertheless, attention to the following appearances will assist us in determining the matter. At about four years, the front teeth lose their points, and each of them presents a flattened surface, which increases as the age advances; they likewise lose their whiteness. In dogs fed much on bones, and in those who "*fetch and carry,*" these teeth suffer very much, and are sometimes broken out, while the dog is yet young. The holders, or tusks, are also blunted by the same causes. At seven or eight, the hair about the eyes becomes slightly grey. Gradually, likewise, a greyish tint extends over the face; but it is not till ten, eleven, or twelve years, that the eyes lose their lustre: when become dim, general decay proceeds rapidly, though the life of some dogs is extended to fifteen, sixteen, or seventeen years; and I have seen a mother and son vigorous at twenty and twenty-one years old. Although such instances as the latter must be considered as rare, yet even these have been exceeded, if I might depend on my au-

thority; for I once saw a small French dog, which I was assured had reached his twenty-fourth year, and which, at the time I saw him, was still vigorous and lively. I am not aware that much difference exists between the various breeds, as to the age they arrive at: spaniels, however, I have observed are usually long lived; while terriers, on the contrary, I have seldom observed very old. The usual life of the dog may be considered as ranging between twelve and fifteen years: domestication has tended, in some degree, to curtail the period, but not so much as might be expected[2], considering the powerful operation of artificial habits.

THE GENERAL TREATMENT OF DOGS AS PREVENTIVE OF DISEASE.

The prevention of disease, it is evident, is an important consideration; and, as such, it may with propriety precede the cure. To guard against the loss of health, we must carefully regulate the essential habits of life of the animals we domesticate. Thus, with our dogs, we attend to their feeding, housing, cleanliness, and exercise. We must also examine their condition, on which both their ordinary health, and their capability for such services as we require of them, will much depend.

The feeding of dogs.—This is necessarily an object of importance, not only as regards the wants of the animal, but also as respects the different quantities and qualities proper under different circumstances. A great error is committed when we feed our dogs on one scale: such as giving the dog which has slept through the day, the same quantity as is set before the pointer that has been hunting incessantly four or five hours. In qua-

[2] Buffon calculates the length of life in the dog from the time of his growth. "La durée de la vie est dans le chien, comme dans les autres animaux, pro-"portionelle au temps de l'accroissement; il est environ deux ans à croitre, ils "vit aussi sept fois deux ans."—*Buffon, Hist. Nat.*, tom. v, 223.

Ælian considers fourteen years as the natural period of life in dogs.—*Ælian, De Nat. Animal.*, lib. iv, c. 41.

Some of the ancients have stated that a difference exists in the duration of life between the sexes, but experience justifies no such distinction.—*Arrianus de Venatione*, c. 32.

lity, likewise, equal error is committed: the latter of these dogs would digest, with readiness and benefit to his constitutional wants, a pound or two of horse-flesh; but the former would be injured by such treatment, and would be more appropriately fed with meal or potatoes mixed with milk or pot-liquor. It is no less curious than true, that the want of food and the excess of it should both produce the same disease; for it is very seldom that a dog is badly fed for a considerable length of time, but that he contracts mange; and it is also as seldom that a dog is long permitted to eat to excess, without becoming mangy also. However, if the same cleanliness and care were to be observed in both cases, the lean dog would have the least of it, and his mange would also prove much the most easy of cure[3].

[3] To feed judiciously, the physiology of digestion should be understood. All the juices of the body, and indeed all the solids likewise, are furnished from the blood. These juices are in a continual state of waste, and the solids are in a continual state of wear; both of which (i. e. the waste and the wear) take place in proportion to the exertion used. There must, therefore, exist some means of recruiting this waste of the fluids, and some means of repairing this wear of the solids. Nature has intended that these ends should be brought about by food, consisting of solid and fluid substances; which, being masticated and broken down into small masses by the teeth, and mixed with the saliva, are rendered fit to be acted on when received into the stomach, where they meet with a strong solvent agent, called gastric juice; by mixing with which they become animalized, and, in fact, wholly altered. In a complete pultaceous mass, called *chyme*, it is passed into the bowels, where there are little vessels that strain and suck up such fluid parts as are fitted for nourishing the body, and pass it forwards in very minute streams into glands, called mesenter.c. These glands empty their contents, then called *chyle*, into one common receptacle, from whence the chylous fluid is poured into the heart to form blood. The blood, therefore, is constantly recruited from this source; and from this description it will naturally suggest itself, that, when food is withheld, the blood must waste; and when this is the case, the fluids of the body must naturally decrease, and the solids must wear fast. On the contrary, when food is taken in too great quantities, the blood will, in that case, become too rich, and be generated in too large quantities; and, as the solids are limited in their growth, so some, or all, the fluids of the body will be formed from the superabundant blood in too large proportions. The moisture that goes to the skin will probably become acrid, and form a disease called mange: the sebaceous glands of the ear, instead of forming wax, will pour out blood or matter, then called canker; or the unnecessary quantity will flow to the teats, where, if it is not the time of pregnancy, it will form a spurious secretion and induration. When these evils

What is the best food for dogs? An examination of this animal must end in determining that he is neither wholly carnivorous, nor wholly herbivorous, but of a mixed kind; intended to take in as well vegetable as animal matter, and formed to receive nourishment from either. He is furnished with sharp cutting teeth for tearing flesh, and he has also tolerably broad surfaces on other of his teeth, capable of grinding farinaceous substances: his stomach and intestines likewise hold a middle place between those of the carnivorous and herbivorous tribes. At the same time, both his dental and his digestive organs appear rather more adapted to the mastication and assimilation of animal than vegetable matter; to which also his habits and partialities evidently tend. He is by nature predacious, and intended to live on other animals: the stronger he hunts in troops, the weaker he conquers singly. Yet still it is clear that his organs fit him, when necessary, for receiving nutriment from vegetable matter also, and we likewise see that he voluntarily seeks it, probably as a necessary mixture, to prevent that tendency to putridity which too great a quantity of animal food begets. It is a received opinion among many sportsmen, that flesh-feeding injures the scent; but it cannot do it naturally; for the fox, one of the caninæ, which is known to be by choice wholly carnivorous, principally lives by the exquisite sensibility of his olfactory organs. If the eating of flesh really have such an effect on sporting dogs, it can only do so, when it has been taken in such quantities as to vitiate the secretions of the body; and in this way the pituitary mucous secretions of the nasal sinuses may themselves become somewhat tainted.

A mixture of both animal and vegetable substances is therefore the most proper general food for dogs, and that which best agrees with the analogies of their nature; but the proportions of each are best determined by the exertions of the body. For, as

do not immediately succeed, the superabundant blood expends itself in secreting an inordinate quantity of the oily fluid called fat, the effects of which are detailed under *Excessive Fatness.*

animal food affords most nutriment, so, when the bodily exertions are great, as in sporting dogs, then flesh is the best food. On the contrary, when bulk without much nutriment is required, as for such as are much confined and do little, then vegetable matter is best adapted to their wants. This subject appears to be one of very general interest; for no questions have been more frequently asked the author of these pages, than—What kind of food is the best for dogs, and what quantity of it? It is difficult to prescribe generally a precise quantity—some dogs require even naturally more than others; and, for the same reasons, it is not easy to give general directions with regard to the quality and kind also. If, however, the rationale of nutrition be attended to, and the above principles kept in mind, the owners will find no difficulty in deciding when one or the other kind is proper, or when a mixture of both is to be preferred.

Many opinions prevail on the subject of *horse-flesh as food* for dogs; its qualities being as strenuously supported by some, as they are condemned by others. The proper mode of considering the matter is to regard it as a strong and actively nutritious food, very fit for dogs who undergo great exercise; to such it never proves hurtful: but where it is given to those who have little exercise, it proves too nutritious, and is apt to produce a foul stinking coat and itching skin. Much diversity of opinion prevails also as to whether it is better to be given raw or dressed. In a state of nature, it is evident that dogs live on raw meat, and there is no doubt that this best fits them for very active exercise, and endues them with the most vigour and durability. Raw flesh of every kind appears particularly to increase the courage and ferocity; and where these qualities are requisite, this mode of feeding will undoubtedly tend to add to them: such food may therefore be considered as proper for sporting dogs, as greyhounds, foxhounds, and harriers, in the height of the season of their employ: for pointers, setters, and spaniels, in very hard and constant work, it is equally good; but with moderate work, I have found mixed food pre-

ferable, obedience and sagacity being here more wanted than ferocity. When, therefore, raw meat, as horse-flesh, can be procured sweet and fresh, it not only increases the animal ardour, but it will go the farthest of any in point of economy, by nourishing most. When it is at all putrid, dressing considerably restores it.

Carrots, parsneps, cabbages, and, indeed, all vegetable matter, will feed dogs sufficiently well for the purposes of existence; and if either milk or good pot-liquor be added, they will form a nutritious diet. It is, however, prudent here to introduce one very necessary caution, which is,—that the broth or liquor in which salted meat has been boiled should never be used for this purpose. Most dogs who have been confined on ship board during a long voyage contract an obstinate species of mange, wholly owing to their being fed on salt pot-liquor. This is not sufficiently attended to among sportsmen; and their servants are very apt to give the liquor in which salt pork and bacon have been boiled, with other brine, to the great injury of the animals. *Greaves,* or the refuse of the matter from which tallow has been pressed, is with many persons a favourite food, because it is a convenient one; and, when mixed with a sufficient quantity of vegetable matter, it makes a hearty meal for large dogs, or such as live without doors, and are subjected to much exercise. I should, however, never make use of greaves myself, when any of the before-mentioned articles could be procured. The inhabitants of cities and great towns often find it extremely inconvenient to find food for large dogs, particularly when there are many to feed. The following plan is peculiarly adapted for such situations; and, by this means a wholesome, nutritious, and cheap food may be conveniently obtained. It consists of the tripe or paunches of sheep, which, being thoroughly cleaned, are to be boiled half an hour, or forty minutes, in a moderate quantity of water. When taken from the water, they should be hung up to cool, and the boiling liquor they came out of should be poured on bread raspings; those of French bread are the best.

The quantity of raspings should be so regulated, that, when soaked and cold, the mess may be of the consistence of an ordidinary pudding before boiling. The paunches being also cold, but not before, should be cut into fine pieces, and mixed with the soaked raspings: when raspings cannot be procured, meal or biscuit may be substituted. The mixture, it is evident, may be made to contain more or less animal matter, by increasing or lessening the proportion of paunch, or other kinds of meat may be substituted; but the author is disposed to think that tripe is at once nutritious and innocent, and tends little to make a dog foul and gross. When likewise it is intended or wished to make the mixture more enticing, the offal or intestines of chickens and other fowl may be obtained from the poulterers, and boiled with the tripe. Of all substances in general use, except horse-flesh, the entrails of chickens is that most eagerly sought after by dogs; and it is one which fattens them faster than any other. For the convenience of persons resident in London, it should be noticed, that the venders of ready dressed sheep heads sell the *trimmings* as dogs' food, and they form an excellent one.

Sportsmen in the country who are averse to flesh-feeding, or cannot always procure it, use various articles for the purpose: it is likewise very often, in retired situations, a difficult matter to find proper substances for this purpose. In some kennels a mixture of meal and milk is used, and dogs will thrive on it during the season they do not hunt; but when they are strongly exercised, and hunt several days in the week, this food is hardly sufficiently nutritious. All the meals of wheat, barley, oats, and rye, are used for dog-food; but it is no difficult matter at once to decide, that wheat meal, when it can be procured, is to be preferred; for it is much less likely to produce mange and a heated skin than the others. Biscuits are in very common use: the damaged sea-biscuit is often employed; but of late, Smith's dog bread has taken the lead with many good sportsmen, and is good, being known to be a compound of the different meals.

Barleymeal and oatmeal are very commonly used, and either is sufficiently nutritious when mixed with milk or broth; but they have certainly some tendency to produce a red itching skin when constantly used; for which reason a portion of potatoes should be mixed with them. Potatoes, even without meal, will be found to form a good food for dogs which are not wanted for very active exertion: they are cooling, and, when mixed with milk or buttermilk, are sufficiently nutritious for all common purposes, and form in this way an economical and wholesome food: if they are not relished alone, a small proportion of greaves, or other fatty matter, may be added, which will render them palatable. When circumstances render it absolutely necessary to feed principally on either barley or oat meal, the heating effects may be also greatly obviated by mixing it with buttermilk. In all cases likewise of eruptive affection, as mange, canker, &c., buttermilk will be found to possess something of a curative as well as preventive quality.

In the feeding of favourites much error is frequently committed; for, their *tastes* being consulted, they are too apt to be wholly fed on flesh, and this in great quantities too. In such cases, although the evil is acknowledged, yet it is alleged that the animals will not eat any other food; it is, however, always in the power of those who feed them, to bring them to live on vegetables entirely even, if it be desired; but it requires, in some cases, considerable determination and perseverance. If the usual quantity of meat a dog eats be minced extremely fine, and a small portion of mashed potatoes be mixed with it, it will not be possible for him to separate the animal from the vegetable portion: if he refuses to eat the mixture, let it remain until hunger obliges him to do it. At each meal, a very small additional quantity of potatoes may be added; and this practice, if persisted in, will bring him at last to live almost wholly on potatoes, or any other vegetable that may be selected. In a medical point of view, a vegetable diet is often very important. In many cases a com-

plete *change* of food forms the very best *alterative;* and, in others, it is a most excellent auxiliary to the curative treatment which is to be adopted. The cases that require a change from an animal to a vegetable diet are frequent: all eruptive diseases; all fat and plethoric dogs; all coughs, dependent on congestion or repletion; and various other inflammatory tendencies, render such *change* essentially necessary to the health of the dog.

At what periods dogs ought to be fed, is frequently likewise a matter of consideration and difference of opinion; but is most likely to be settled aright, by considering it on the principles already touched on. In a state of nature, even a daily meal among dogs must be very precarious; for, in some situations, vegetable food cannot be obtained, and then the hunting down of other animals, or the meeting with the offal or refuse of what may have been hunted by others, must be the principal support. For this reason, Nature has kindly and wisely fitted a dog with a stomach that digests his food, particularly of the animal kind, very slowly; so that a full meal of flesh is not digested in less than twenty-four hours. Those, therefore, who feed their dogs on animal matter never need to do it more than once a day; nor do dogs require to be fed oftener if meal be given, when the quantity is sufficient. But it must be remembered that, under a life of confinement and art, where all the functions are weakened, as they must of necessity be in those dogs who are petted and indulged, it is better to feed them in smaller quantities twice a day. If fed once only, they become heavy and sleepy, and lose much of their vivacity. This may elicit an observation, that hard-worked dogs, as soon as fed, should be shut up, to encourage sleep. Digestion goes on better sleeping than waking; and more nutriment is obtained from the food in this way than when an animal is suffered to run about after eating.

It may be also not improper to notice the unnecessary fear that many persons encourage relative to the giving of bones to dogs. Except from those of fish, or the legs and wings of poultry, which break into splinters, and may choak, I never

remember having seen a dog injured by a bone; but I have great reason to think that the stomachs of these animals would be often benefitted by the action of the bones: and also, that although the teeth are thought to be broken by them (and now and then, though but seldom, they may be), yet that the evil is more than counterbalanced by the mechanical action of the bones cleaning away the tartar, that otherwise accumulates around them. No fear need be entertained of their occasioning obstruction; the power of their gastric juices is equal to the total solution of the largest bones they can take down. I have seen a pointer of my own swallow the shank bone of a leg of mutton, which he was unable, from its size and strength, to break. I am of opinion that bones are a healthy addition to their food, and certainly, from their soluble qualities, they are very nutritive. The stomach of the dog is as complete a *digester* of bones as the *iron screwed pot apparatus* of Count Rumford.

THE HOUSING OF DOGS.

This subject will occupy but little of my time, as I would hope there are not many persons who would be inhuman enough to turn an unoffending and faithful animal out without shelter during the cold and damp of our nights[4]. Too many, however, err on the other hand, by placing their dogs in close confined

[4] In charity, I would believe, that when persons turn their dog out to sleep in the open air, they conclude him to be naturally a *nocturnal animal*, and that therefore such exposure is *natural* to him; but they are totally in error: and even had he been so in his aboriginal state, yet artificial habits and close domestication have so altered his nature, as to render him unfitted to cope with cold and moisture without pain and danger. The dog, however, really is not by nature a nocturnal animal, like the fox, whose predacious habits in search of fowls when at roost make *night* the especial season of his prowlings; and to which end nature has furnished him with a structural peculiarity in his organs of vision, totally different to that of the dog. The eye of the fox presents a pupil like that of the cat, likewise a nocturnal animal, whose contractions are not circular, like those of the dog, or our own, but are linear, and capable of extreme dilatation and contraction. The dog having no such apparatus, was evidently intended to sleep during the night; and as in a state of nature he could furnish himself with a cavern, surely his master ought to supply him with some shelter: if with a kennel, let the opening incline to one side.

boxes or houses, without sufficient ventilation. A wicker basket is the best covering for most pet dogs, except Italian greyhounds and the naked Barbary dog, which may be further protected by a wooden house, or by a coverlet. Dogs sleeping without doors should have the use of a kennel well closed from rain and wind; but, of course, open in front, provided such front is not opposed to driving rain, snow, &c. I would not even mention such minute matters, but that I know some well-meaning persons err from want of thought more than from want of humanity. The sportsman may assure himself, that the comfort of a sheltered and even soft and warm bed of straw, are as necessary, not only to the comfort but to the health also of his dog on his return from the fatigues of the chase, as the feather-bed and its coverings are to himself. The same stiffness, the same rheumatic pains, and incapacity of ready motion, await the dog as his master, if these protections are not enjoyed by both. The kennels of our best hunting establishments are usually excellently adapted to give sufficient warmth with sufficient ventilation; but it is of much importance, where hounds sleep on benches, that no direct draught of air be allowed to drive over them.

WASHING OF DOGS.

There are few sources more productive of disease to dogs than a wanting of general cleanliness in the air they breathe, and in the state of all those matters they are in communication with, as their beds, &c., and particularly in the state of their hides. Dogs confined together in a close unventilated situation beget coughs, which often end in permanent asthma: if young, they become tabid; if adults, mangy or dropsical. The acrid fumes from their own bodies, when in close confinement, and more particularly from their urine, stimulate the eyes, and produce diseased eyelids. It is also assistant to health, that confined dogs should have their hides rubbed every day with a hair cloth, or a wisp of straw: this dislodges the furfuraceous matter of the skin,

and prevents its adhesion, which forms the first step to mange: it also assists general circulation, and stands in the stead of exercise. This practice of rubbing would prove an excellent substitute for washing in many cases, particularly where water proves injurious, which it sometimes does to delicate dogs.

Washing of dogs is, under some circumstances, a very necessary practice, and, when judiciously managed, is salutary also: but, when otherwise, it is productive of more mischief than persons are aware of. There is not a more fertile source of disease to dogs, than suffering their coats to remain wet after washing or bathing. In the first place, it subjects those who are unused to it to colds, distemper, inflammations, or asthma; and in those to whom the practice is common, it is scarcely less pernicious; for, though it may not occasion immediate disease, it nevertheless, in the end, frequently produces canker or mange. It may be observed, as a proof of this, that dogs who often go into the water are seldom without some affection of this kind. Canker, particularly, is almost confined to dogs who swim much, or who are washed often, without being properly dried afterwards: it should, therefore, be most attentively observed, when dogs are washed, that they are also carefully dried after it. Very small dogs, for this purpose, may be wrapped up in a blanket: large dogs, after being well rubbed, may be permitted to run into a stable among clean straw, which is a very excellent means of drying them, and, from its warmth, a very safe one. It should also be remembered, that, in ascertaining the proper warmth of the water for the washing of dogs, the heat, which appears trifling to the hand of a servant always used to dabbling in suds, will scald an animal unused to any thing but cold water. Washing should not be repeated oftener than once a week, even with the best care; for it certainly promotes mange and canker. Rubbing the skin with a flannel and dry bran is better. In slight rednesses of the skin, washing with common gin will often remove them. In similar cases, yellow soap well rubbed in, and then

completely washed off, is also a good practice. But, however hurtful a too frequent system of water washing may be to healthy dogs, to diseased ones both hot and cold bathing are of the greatest service.—See *Bathing*, Class XIV.

EXERCISE.

The want of due exercise is the cause of nearly one half of the diseases of dogs; and the ill effects of this deprivation are very often heightened by inordinate feeding also. It should be remembered, that a dog is an animal of prey, destined, in a state of nature, to hunt for his food, and to sacrifice to his appetite lesser and weaker animals, whose exertions to escape must keep him in a continual habit of most active exercise. Wild dogs, therefore, probably do not get a regular and full meal twice in a week: how great, therefore, must be the difference, when they are either shut up in a warm room twenty-two out of twenty-four hours; or are, perhaps, fastened by the necks for many months together, without any other exercise than what the length of their chain allows them! In such cases, if they have plenty of air, and are moderately fed, the want of exercise shews itself by mange or canker: if the repletion does not escape by this outlet, then the effects become apparent by an enormous increase of fat, which usually ends in asthma and dropsy.

Nothing affords a stronger conviction of the necessity of exercise to animals than their natural love of play, which was given as a principal means of preserving health. In cities and great towns, it is a very excellent plan to teach puppies to play with a ball; by which means they will exercise themselves very well in wet weather, or when they cannot be taken out; and, when early taught it, will continue through life attached to the exertion: such as will not amuse themselves in this way, may yet all be taught to fetch and carry. A very mistaken opinion prevails, that, because a dog is turned into a yard or court an hour, or half an hour, that he exercises himself; on the contrary, in general he regards this as a punishment, and sits shivering at

the door the whole time. Dogs are more disposed to take exercise in company than alone: emulation induces them to run and frolic with each other; it is prudent, therefore, to allow every favourite a companion. For sporting dogs, constant exercise is also *essentially* necessary: when *taken up* for the season, if they are close kennelled, it is very common, when they are again wanted, to find them fat, out of wind, and easily fatigued; for not only is the habit of exertion lost, but the muscles of the body have actually become lessened and weakened by the inactivity. Exercise improves the wind, by taking up the surrounding fat from the heart and chest; thus allowing the lungs to expand more freely. Fits are a very common consequence of confinement without regular exercise; and it is very usual for a dog, particularly a sporting one, which has been closely and long shut up, on gaining his liberty, to experience a violent fit: the same also occurs to dogs after long voyages.

Exercise should, therefore, be allowed to every dog; and as this should be done in proportion to his other habits, to lay down any general rule on this head is nearly impossible: for such as are very fat, it should not be violent, but it should be long continued; when too violent, it is apt to produce epilepsy or asthma. Sporting dogs require gallops, to fit them for their work, and to give them wind; and, for this purpose, they should be taught to follow a horse. Lesser dogs, and all who are at other times confined, require at least two hours' exercise every day. Whenever circumstances absolutely preclude exercise, the only preventive to the evils threatened by the deprivation, is a lessening of their food, and that it be principally composed of vegetables: alterative medicines, as laxatives and emetics, should also be administered.

CONDITION.

The term *condition*, as applied to dogs, is correspondent with the same term as used among horses; and is intended to characterise a healthy external appearance, united with a capability,

from full wind and perfect vigour, to go through all the exercises required of them. It is, therefore, evident, that *condition* is of material consequence to sportsmen: indeed, it is of infinitely more importance than is generally imagined. What would be thought of the sporting character, who should enter his horse for racing without any previous training? And how much chance would he be presumed to have, even "*to save his distance,*" without this precaution? Is it not equally reasonable to suppose that pointers, setters, spaniels, and, more than all, greyhounds, require training; or, in other words, to be in full *condition* also? It is notorious, that pointers, setters, and spaniels, if they are what is termed *foul* in their coats, never have their scent in perfection. It must be equally evident that, unless they are "*in wind,*" they cannot range with speed and durability; and, without some previous training, it is impossible they should be so. Those persons, therefore, who expect superior exertion from their dogs in the field, would do well to prepare them by a previous attention to their *condition.* In greyhounds, intended either for *matches,* or for *simple* coursing, it is evident that this is absolutely necessary to insure success. In simple coursing, they are pitted against an animal very nearly equal in speed to themselves, and always *in condition* by its habits. If, therefore, a dog of acknowledged goodness is beaten by a hare, especially at the beginning of the season, it is ten to one but the *condition* of the dog is at fault. It is self-evident that perfect condition must be more than equally important in coursing *matches;* where a dog has two competitors to beat, the hare and the other dog.

The manner of getting dogs into condition is very simple, and either consists in reducing the animal from too full and soft a state, to one of firmness and less bulk; or it consists in raising a lean and reduced dog to lustiness, hardness, and vigour. Some sportsmen prefer the one state, and some the other, to begin upon. If a dog is fat, his treatment must be entered on by physic and sufficient exercise, but not by a privation of food;

and it must be particularly observed, that his doses of physic be mild, but more in number. The exercise should be at first gradual and slow, but long continued; and at last it should be increased to nearly what he will be accustomed to when hunting. If there is the least foulness (*i. e.* if the secretions of the skin are impure) apparent in the habit, besides physic and exercise, alteratives should be given also: these medicines immediately follow the subject of *condition*. Some sportsmen regularly dress their dogs, before the hunting season, with sulphur, even though no breaking out appears, and I by no means think the practice a bad one. Others curry or brush their dogs, whether any skin affection appears or not; and, to greyhounds, it is a very proper means of keeping up the equilibrium of the circulation, and of promoting muscular elasticity. When a *lean* dog is to be got into *condition*, less physic is necessary; but good flesh feeding, plenty of exercise, and a due administration of alteratives, are principally to be resorted to: nevertheless, one or two doses of very mild physic will here also promote the condition, and even assist the accumulation of flesh.

EXCESSIVE FATNESS.

Among the various defects in condition, obesity, or an overloading of the adipose matter or fat of the body, is one of the most common. A proper plumpness of appearance denotes health; but when the animal oil becomes inordinately disproportionate to the other parts of the body, it proves a source of numerous diseases. The natural tendency of dogs to become fat is considerable, for any dog may be made so by moderate feeding only, with little exercise. Provided the accumulation has been quick, the dog may be reduced to his former state without prejudice; but, when a dog gradually accumulates much fat from over-feeding and confinement, then the accumulation itself becomes so completely a disease, that even exercise and abstinence will not always wholly reduce him; for the formation of the adipose substance is so habitual a work of the constitution,

that, however little food the animal takes, short of starvation, that little goes to the formation of animal oil. The truth of this may be known by the notorious fact, that many fat dogs eat but very little.

There are, therefore, two sources of obesity; one *over-feeding*; the other, *want of exercise*: and when, as is very frequently the case, both causes happen to meet in the same subject, then the accumulation is certain. When dogs are over-fed, whatever is taken into the body, more than the general secretions require, is either converted into fat, or forms some other unusual secretion; as a purulent flow from the ears in canker, or scabs on the skin in mange. Exercise increases all the usual secretions; hence, under strong exercise, more nutriment is required: and thus, in such cases, full feeding does not produce fat; but, even in full exercise, provided some of the usual secretions are stopped, though the others may be in full force, yet an inordinate quantity of animal oil is apt to form: thus spayed bitches and castrated dogs usually become fat, however they may work, because in them the sexual secretions are inert.

Fat more readily accumulates in middle-aged and old dogs, than in the young; and the adeps of old dogs is more hurtful to them than that of the young; the reason of which appears to be, that all aged animals have their fat placed more inwardly, while in the younger ones it is found more upon the surface of the body. A state of excessive fatness is an almost certain forerunner of asthma. It is also the parent of mange, canker, and other eruptive diseases; and not unfrequently it occasions epilepsy, from the pressure it produces on the vessels of the head and chest. I have also seen an excessive deposition of fat within the chest, particularly around the heart and large vessels, which has terminated by a rupture of one or the other of them.

ALTERATIVES.

These various states of want of condition require the use of alteratives: there are also many states in which, although there

appears no very serious disease, yet a sufficient remove from health exists to make some *alteration* in the constitution necessary. When this is the case, the end may, in general, be attained by these remedies. An actual disease may also exist, whose removal can be best effected by a slow but uniform change, to be wrought in the constitution by what are, from this circumstance, termed *alteratives*. Hence excessive fatness, chronic coughs, fits, glandular swellings, mange, &c. &c. are best attacked by these slow but sure means.

Various substances are used as *alteratives;* as antimonials, and the different preparations of mercury, iron, and tin. The nitrate of potash *(nitre)*, the supertartrate of potash *(cream of tartar)*, aloes, salines, &c. &c. &c., are excellent alteratives. Tartarized antimony *(emetic tartar)* often proves a very useful alterative in the chronic asthmatic cough to which dogs are subject, given as an emetic once or twice a week, in doses of one grain to three. Antimonial powder, or James's Powder, may be also given with benefit as an alterative in similar cases. Crude antimony is often found useful in diseases of the skin; but it is unfortunately very uncertain in its operation: that is, some dogs will bear a considerable quantity, while others cannot even take a small one without violent sickness: the usual dose is from half a scruple to half a drachm. Nitrate of potash *(nitre)* is a very useful alterative to dogs, for hot itching humours and redness of the skin, in doses of four grains to ten. The supertartrate of potash *(cream of tartar)* may be also given as an alterative with benefit, in larger doses, in the same cases: all the preparations of mercury, though excellent alteratives, require great caution when frequently repeated, or regularly given; for dogs are easily salivated, and salivation produces very hurtful effects on them.

Dogs, when fully salivated, lose their teeth very early, and their breath continues offensive through life. The whole of the feline tribe are also easily affected by mercury. I was requested to inspect the very large lion that so long graced Pidcock's

Menagerie. It may be remembered by many, that this noble animal's tongue constantly hung without his mouth; which arose from his having been injudiciously salivated, many years before, by a mercurial preparation applied by the keeper for the cure of mange. The submuriate of mercury *(calomel)* is, likewise, very irregular in its action on dogs; I have seen eight grains fail to open the bowels of even a small one, while, on the contrary, I have been called to a pointer, fatally poisoned by ten grains. It forms, however, a useful auxiliary to purgatives, in doses of three or four grains; and as it not unfrequently acts on the stomach, so it may be used with advantage as an emetic in some cases, particularly in conjunction with tartarized antimony *(tartar emetic)*. When, therefore, a purgative is brought up again, in which calomel was a component part, it may be suspected to arise from this source, and, if it is necessary to repeat the purge, the mercurial should be omitted.

The various preparations of iron form excellent alteratives in some cases of weakness, particularly of the stomach and bowels, for which affections they act best when united with the aromatic bitters. Sulphur is the alterative remedy in the most general use of any; but its properties in this respect are much overrated. It is a very common practice to put a roll of brimstone into the pans from whence dogs drink their water; the impregnation of which, by means of the sulphur, is expected to keep the animals in health: but so completely insoluble in water is brimstone in this state, that a roll of it so kept would not lose ten grains of its weight in ten years, nor would it become in the least altered in its quality. Sulphur in powder, or flour of brimstone, as it is termed, is, however, more active; but even in this form it often passes through the bowels nearly unchanged: it proves, in other instances, slightly purgative. In one disease, however, it seldom fails to do good, even unaccompanied by any thing besides, which is the piles, to which complaint many dogs are very subject. In conjunction with other alteratives of the cooling, cleansing kind, it proves also useful in mangy eruptions,

canker, &c.; and I am disposed to think, that one part of supertartrate of potash *(cream of tartar)*, with two parts of sulphur, forms the best alterative that can be given in these cases. Externally applied, the benefits of sulphur are much more apparent, and are too well known to need enumeration. Alteratives are, therefore, of almost universal application, as they are both preventive and remedial; they *prevent* the accumulation of fat and other matters, as the milk in the teats of bitches, foulness in the skin, congestions in the chest, &c. As *remedies*, they are adapted to all diseases of long standing, by their gradual action.

EMETICS.

AMONG the various alteratives, none are more salutary to dogs than emetics: vomition appears almost a natural act in dogs; at least it is one that they voluntarily excite, by eating emetic vegetables, as the long wild grass, so hurtful to pastures. Dogs, in common with all quadrupeds who eat animal matter, are subject to irregular digestion and a train of symptoms that we denominate bilious. In the canine species these are particularly prevalent; and dogs appear to be instinctively taught to relieve themselves from them by an *emetic*, which they take more frequently, when they can procure it, than we are aware of. It is evident, therefore, that such as are much confined, and those which inhabit large cities, must suffer in their health from the want of this usual evacuation. To remedy this, when circumstances wholly prevent their reaching the grass, or other emetic vegetables, some of the dog-grass might be brought to them, either gathered, or the roots of it might be placed in pots for their use: in fact, it is sold in Covent Garden for the express purpose. In default of this, a mild occasional vomit, of tartarised antimony *(emetic tartar)*, or calomel, will become a very proper method of imitating this natural evacuation of the dog; and will tend much to keep such in health as are subjected to heating food, confined air, and little exercise. Emetic tartar

may be readily given as a ball; or it will sometimes be voluntarily taken in a little milk or broth, or between small slices of meat, or with butter; in quantity from one grain to three: a very large and strong dog might require four grains. Calomel also, from a grain and a half to four grains, forms a very useful and cleansing emetic, acting, as it usually does, upon both the stomach and bowels. These articles may also be mixed in equal proportions, and of the mixture from a grain and a half, as the smallest dose, to four, five, or six grains as a full one, may be given with benefit in any affection where both these intentions are to be fulfilled: in pure febrile cases, it may be prudent to trust to the tartarized antimony alone; an antimonial emetic being peculiarly called for in these cases by the power it possesses of lessening the action of the heart and arteries. Common salt is also a ready domestic puke for dogs; the half of a small tea-spoonful being sufficient for one of a diminutive size; a tea-spoonful for a larger; and a tea-spoonful and a half for the largest: but it is apt to act violently, and is, therefore, not to be recommended for such as are tender or delicate; many such having been destroyed by it. Greater objections even may be made to Turpith mineral and crude antimony; to both of which, however, sportsmen are apt to be very much attached, but without any good reason, for both are very violent in their action: crude antimony is also uncertain. No possible good can be derived from these drastics, except, Othello like, the poor dogs which take them are afterwards to be loved "for the dangers they have passed." Many are killed outright by them, and many more would share the same fate, were it not that their poisonous emetic qualities are such as often to cause them to be rejected by the stomach almost immediately they are taken. It may be proper to observe, that where calomel, or any of the heavy metallic substances are given to dogs, it should not be done in liquids; for, by falling to the bottom of the vessel, they escape being taken. Mixed up with butter, or enclosed between two thin slices of meat, dogs may often be deceived to take medicines without force, particularly

when the matter mixed is tossed to them; by which they catch it without smelling it: for so keen is their scenting quality, that otherwise, they will be very apt to detect the attempted deception; and some will even be timid for a long time afterwards of receiving any thing offered by the hands.

Laxatives and Purgatives.

These evacuants are both *preventive* and *curative* of disease: they are valuable *alteratives*, and active *immediate* agents in acute affections. By opening the bowels, we remove a frequent cause of irritation to the system; and a very considerable source of skin affections also; for whatever is taken up superfluously by the system is apt to find itself an outlet there. We thereby likewise prevent pulmonary congestion, and deposits of fat, which would obstruct the visceral functions. *Laxatives* are good preventives against that habitual costiveness common to dogs, and all other carnivorous animals: such, therefore, as are flesh-fed should have this tendency obviated by laxatives; and the best which offers itself is a portion of vegetable matter with their flesh food: potatoes, or even greens, can always be procured, and will answer the purpose. This is the more necessary, for costiveness sometimes occasions fatal obstructions; and a costive habit brings on fistulæ, and also affords encouragement to the breeding of worms.—Medicinal laxatives are numerous. Epsom salts *(sulphate of magnesia)*, dose one drachm to two; castor oil, two drachms to four; syrup of buckthorn, the same quantity; will either of them answer this end, the quantities being increased if those mentioned are not found sufficient: but as these directions are intended to meet the tender pet of the drawing-room, as well as the strong inhabitant of the kennel, so it is prudent to specify the minor dose: more may be added, but it is too late to subtract when too much has been given.

Purgatives may be made by increasing the doses of any of the laxatives. Jalap is not a bad purgative to dogs, but it is uncertain, some being little affected by it; rhubarb is equally so;

senna I have no experience of; gamboge is very drastic; calomel is an excellent auxiliary to other purgatives on some occasions; but given alone it is apt to deceive, by proving more emetic than purgative: neither will the stomach or bowels bear a sufficient quantity without producing much derangement in the system, as violent vomiting, tenesmus, and sometimes sudden salivation. Aloes form the safest general purge to dogs; and such are the peculiarities of the canine bowels, that while a man can take with impunity as much calomel as would kill two large dogs, a moderate sized dog will take a quantity of aloes sufficient to destroy two stout men. The smallest dog can take fifteen or twenty grains; half a drachm is seldom too much, but the smaller dose had better be tried first: medium sized dogs usually require a drachm, and some large dogs have taken more than two drachms: I have given three to a strong Newfoundland dog without extraordinary active catharsis; but, as before observed, dogs differ much in their different habits, and it is therefore most prudent to begin with a dose too small than one too large: hundreds of dogs are every year destroyed by temerity in this particular.

The Mastiff Pug, or supposed origin of the Bull Dog, p. 26.

Whenever a purgative is given, let the dog have some vegetable food, if possible, a day or two previously; an active cathartic, given soon after a full meal of flesh or bones, might destroy by hurrying the undigested food into the intestines, where it might form such an impacted and obstructing mass as could not be overcome. Likewise, when a purgative has been given, it is prudent to place before the dog some broth, milk, &c., to assist purgation. Let me warn sportsmen who are putting their dogs *through a course of physic*, for hunting, or coursing purposes, to be aware, that it is not the inordinate strength of the dose which does good; on the contrary, violent physic defeats its own purpose: it is a mild and repeated emptying of the bowels which unloads the system at large, and at once strengthens the solids and purifies the fluids.

PART THE THIRD.

THE DISEASES OF DOGS.

GENERAL TREATMENT OF DOGS UNDER DISEASE.

I SHALL commence the subject with making some observations on the diseases of dogs generally; and with offering some practical directions applicable to the principal of them. The dog I have already shewn to be *partially* an omnivorous animal. Man is *decidedly* omnivorous, and, as might be expected, a great likeness exists between their organs of assimilation, which extends itself into their diseases also, the human and canine maladies running a remarkable parallel together. This similarity of disease does not, however, equally extend to all the domestic animals around us. The æquine and human diseases have numerous dissimilarities; the bovine still move, and consequently the diseases of the dog must be studied distinctly from the other branches of veterinary inquiry: to which circumstance we must attribute the lamentable state of canine pathology until now. The human practitioner, from this striking similitude of disease, might often safely and beneficially prescribe for the dog, while the veterinarian is precluded by the specialities alluded to. Unfortunately, however, the one has often thought the matter beneath him, while the other found it above him; and thus between the two, the poor dog has been too often neglected. The time is, however, hastening, when this valuable servant of man will find succour in his hour of need: these pages, I believe, have done something for him: he has a warm and able friend in the

humane and ingenious Mr. Youatt (see the end of this article). Nor will the medical treatment of the dog hereafter fail to form a part of the course of instruction in the St. Pancras Institution.

It is likewise no less true than curious, that not only do the maladies of the canine race very nearly resemble those of the human species, in cause, appearance, and effect; but the similarity is extended to the number and variety of them also, as may be seen by a reference to the nosological catalogue, where many complaints will be found that have no existence among other domestic animals. These affinities will, however, cease to excite wonder when we consider that, in addition to the complexity of structure in dogs, their complete domestication has subjected them to lives wholly artificial, and, in many instances, to habits the most unhealthy. It is not, however, in every case, that these analogies would enable the human practitioner to judge of or prescribe for the diseases of the dog: on the contrary, in many instances, the most acute physician and the most able veterinarian would be equally at a loss without a previous acquaintance with canine pathology. Among other sources of difficulty to both, the canine specific diseases may be quoted, which are neither met with in the human, or the ordinary veterinary practice: another important deviation from the line of both practices arises from the very different effects that some of the remedies employed by both would have when administered to the dog. Fifteen grains of emetic tartar would probably destroy any dog; five hundred could be given to a horse without injury.

Ten grains of calomel, though a full dose, is by no means a destructive one to a human subject; yet I have seen a large pointer killed by this quantity, which had been ordered by an eminent surgeon: even three or four grains will often puke violently, and twice the quantity will often fail to purge: twenty times the quantity would fail to do one or the other in the horse. On the other hand, three drachms of aloes, which would probably prove fatal to nine human persons out of ten, might be taken by some large dogs with impunity. A dog could take, without any

derangement, a dose of opium which would destroy a man; on the contrary, the quantity of nux vomica, or crowfig, that would destroy the largest dog, would fail to destroy a man. A very small quantity of oil of turpentine will kill a dog; when in human practice, a considerable dose is frequently given as a vermifuge[1]. Between the effects produced by many medicinal articles on the stomachs of other domestic animals, and that of the dog, a still more marked distinction, or, at least, a more universal one, exists. Without knowing better, one might be misled by the accounts we read, and hear from sportsmen, of the monstrous doses they give of some medicines: the fact is, the stomach rejects it at once,—a dog is soon vomited, and thus is not destroyed; give him half the quantity, and it would kill, because it might not be immediately rejected. It will therefore be evident, that neither the human physician nor the veterinary practitioner can be equal to a successful medical practice on dogs, without much attention to the subject, and much experience in it. It adds to our difficulty in collecting the diagnostic signs of disease, that our patient, like the human infant, cannot speak: with dogs, nothing but very long habit of observation of these appearances in a vast number of cases, united with a natural quickness

[1] The critic should beware sometimes when he wields the lash, for fear the stroke may recoil. When this work first appeared, and was reviewed, great surprise was expressed, because I had made so palpable an omission, as not to insert oil of turpentine as a vermifuge for the dog. Perhaps the reviewer was the same gentleman noticed by Mr. Youatt, in *The Veterinarian*, No. 13, p. 11, who gave one or two drachms of it to a stout spaniel for tape-worm, which destroyed him instantly. In a late sporting work of great volume, we find it also recommended to give half a pint of linseed oil and two drachms of oil of turpentine as a "*sovereign remedy*" for worms. It would be no easy matter to get the *quantity* down, and the *quality* of the turpentine would in all probability kill: the same work recommends, as a cure for fits, from two to eight grains of tartar emetic. Very few dogs would survive the taking of the larger dose. I saw a large and valuable dog destroyed by ten grains, given at the instance of a veterinary surgeon even. It is much to be regretted, that gentlemen and authors are so ready to offer medical instructions on matters they know nothing about. There is certainly no more reason why the most finished sportsmen should be able to prescribe for the diseases of horses or dogs, than that their valets who attend on them, or the barber who shaves them, should understand their diseases.

of perception, can enable the practitioner, in very many cases, to arrive at a just conclusion. The symptomatology of canine disease is necessarily diffused through the manifestations of the individual ailment. As in the human, and other brute subjects, we regard the state of the circulation by the pulse[2], and by the ratio of respiration. We examine into the state of the excretions when in our power, and we attentively examine by the eye, and the touch, every part of the body; by which we often gain much information that the fears or the patience of the animal might conceal. We ought also to examine the eyes and tongue, the one, as indicatory of both inflammation and hepatic effusion, and the other, of affection of the alimentary canal: nothing is to be done without experience, and a professed and particular attention to the subject. When, also, the existing disease has been ascertained, and the appropriate treatment has been determined on, still another difficulty often presents itself; which is, how to administer the remedy. Now and then, dogs prove very refractory, and no small degree of force is necessary to get any medicine down. In general cases, however, a slight degree of dexterity

[2] The pulse of the dog may be felt by the heart, and at various points of both the fore and hind legs, but particularly at the inner side of the protuberant callosity of the carpus or knee. The range of pulsation between a very large and a very small dog is not less than 20; thus, if 100 be taken as the usual number of the first, and 120 for the latter, whatever is found to much exceed this, may be usually laid to the account of an inflammatory state. It must, however, be observed, that from the greater irritability of lesser animals compared with the larger, and the extreme quickness of their circulation, the motions of the heart and arteries do not present such exact criteria of health and disease as they do in the horse and other large animals. Nevertheless, the action of the heart, and the pulsations of the larger arteries, may be felt with propriety in many cases, and will serve as some guide to ascertain the degree of excitement. The pulsations will not only be increased in quickness, but they will present a vibratory feel in violent inflammatory affections. In inflammations of the lungs they will be very quick and small, but will increase in fulness as the blood flows during bleeding. Something like the same will occur, but not in an equal degree, in inflammations of the stomach and bowels also. As the pulsatory motions, therefore, are not so distinct in the dog as they are in larger animals, so, in general, the state of the breathing, which, in most cases, is regulated by the circulation, may be principally attended to as a mark of greater or less inflammatory action. When a dog, therefore, pants violently, his circulation, or in other words his pulse, may be considered as quickened.

will accomplish the purpose, the particulars of which are detailed below[3].

Dogs under disease are very tender animals, and require very great attention and care to insure their recovery: it is, however, too common with many persons to neglect them under these circumstances; and if they are placed in a cold room, or an outhouse, with stale or broken victuals and water placed before them, it is frequently all the attention they experience: unless, perhaps, to all this may be added, something of doubtful efficacy as a *remedy*. But when we consider how very tender many of these animals are rendered by confinement and artificial habits, it will be clear that, under sickness, they must require peculiar care and attention. Warmth seems particularly congenial to the feelings of sick dogs, and is often of more consequence to

[3] *The best method of administering remedies.*—Place the dog upright on his hind legs, between the knees of a seated person, with his back inwards (a very small dog may be taken altogether into the lap). Apply a napkin round his shoulders, bringing it forwards over the fore legs, by which they become secured from resisting. The mouth being now forced open by the pressure of the fore finger and thumb upon the lips of the upper jaw, the medicine can be conveniently introduced with the other hand, and passed sufficiently far into the throat to insure its not being returned. The mouth should now be closed, and it should be kept so, until the matter given has been seen to pass down. When the animal is too strong to be managed by one person, another assistant is requisite to hold open the mouth; which, if the subject is very refractory, is best effected by a strong piece of tape applied behind the holders or fangs of each jaw.

The difference between giving liquid and solid medicines is not considerable. A *ball* or *bolus* should be passed completely over the root of the tongue, and dexterously pushed some way backwards and downwards. When a *liquid remedy* is given, if the quantity is more than can be swallowed at one effort, it should be removed from the mouth between each deglutition, or the dog may be strangled. The head should also be completely secured, and a little elevated, to prevent the liquid remedy from again running out. Balls of a soft consistence, and those composed of nauseous ingredients, should be wrapped in silver or other thin paper, and greased, or they may occasion so much disgust as to be returned. Medicines wholly without taste, as mercurials, antimonials, &c. may be frequently given in the food; but sometimes a considerable inconvenience attends this, which is, that if the deception is discovered by the dog, he will obstinately refuse his food for some time afterwards. The purging salts may also be sometimes given in food, being mistaken by the animal for the sapid effect produced by common salt.

their recovery than is imagined: many of their diseases degenerate into convulsions when they themselves are exposed to cold. Cleanliness of every kind, and a change of their litter or bed particularly, is very grateful to them in many cases of putridity, as in distemper, &c. Complaints purely inflammatory, it is evident, must be treated by abstinence; but, in all others, the weakness present must be combated by nutritious aliment.

It is not sufficient, as is often imagined, that food, particularly of the common kind, be merely placed before a sick dog. In many such cases, the appetite wholly fails; and, if even the animal could eat, the stomach would not at this time digest hard meat, or any of the common matters usually given to dogs. In these instances, nourishment is best received from strong broths, gravy, jelly, or gruel; or, perhaps, best of all, from thick gruel and a strong animal jelly, mixed; for I have always remarked, that no simple liquid will afford equal nutriment with one thickened with flour or other meal. Sick dogs are also very fanciful, and often require enticing to eat, by the same arts we use towards children. Fresh meat of any kind, but very lightly broiled, will sometimes tempt them. At others, pork in particular is highly relished; while, in some cases, raw meat alone will be taken[4]. But in almost all cases, if the slightest inclination for food remains, horse-flesh, lightly dressed, will be found irresistible, so great is their preference for this food. The extreme fickleness of their appetite, when sick, makes it necessary that every kind of edible should be tried, as that which is voluntarily taken will always digest more readily than that which is forcibly given; still bearing in mind, that as support is essential, particularly in all illnesses of long continuance, so, when food is obstinately refused, nourishment should be forced down. In cases requiring active cordials, ale may be mixed with gruel or gravy: wine is seldom advisable, from its disposition to inflame the

[4] Sir Astley Cooper instituted a course of experiments to determine the degree of solubility, by digestion, in various meats within the stomach of dogs; when the result was greatly in favour of the digestible properties of bacon and pork.

bowels. I have, however, now and then used it with benefit in highly putrid cases of distemper; in which instances forced-meat balls also prove both nutritious and cordial.

The intensity of mental feeling in the dog is at all times great, but under disease it appears doubled; and although it may, to a superficial observer, look like an affectation of tenderness, it is a very necessary caution to observe, that at these times their minds should be soothed by every means in the power of those around them. Harshness of manner and unkind treatment, in many instances, very evidently aggravate their complaints: under some diseases, their irritability of mind is particularly apparent; of which distemper is a very prominent example. I have several times witnessed an angry word spoken to an healthy dog produce instant convulsions in a distempered one who happened to be near; and the fits that come on spontaneously in distemper, almost instantly leave the dog by soothing notice, so open are they to mental impressions. Joy and surprise will also often prove equally injurious to them when they are very weak.

Even among those who conceive themselves minutely acquainted with dogs (and who probably are so with the sporting kinds, and with such as lead more natural lives in the open air of the country, with the advantages of moderate feeding and due exercise) there will be many who will regard these extreme cautions as unnecessary. The number and variety of the diseases quoted will also probably excite their surprise; and, unaware of the *existence even* of many of them, they will be apt to consider the diversity of symptomatic appearances described, the cautions insisted on, and the minuteness of detail in the medical treatment, as, in a great degree, superfluous: but a little further inquiry will satisfy such, that no animals can differ more widely than the dogs they are accustomed to, and those that are born, bred, and perhaps constantly reside in cities, towns, or other close situations. These instructions are necessarily confined to no one meridian: as well as the more healthy country animal, they embrace also the pet, and pampered favourite, that is perhaps immured, twenty-three out of the twenty-four hours, in a hot drawing or bed-room,

breathing the same confined air, eating the same luxurious food, and exercising in the same easy carriage, with his owner. A life so wholly artificial alters the mental and bodily properties to such a degree, of such as are subjected to it, that their constitutional tendency to disease is almost as great as that of those they belong to: under disease their irritability is nearly equal, the diversities of their symptoms alike numerous; and, consequentiy, they require every portion of that caution and attention I have prescribed to insure their recovery.

PROFESSIONAL ATTENDANCE AND ADVICE FOR DOGS.

I PRESUME I hardly need to further inform the proprietors of dogs, that no written instructions can meet every case; the variations in disease, the anomalies attending the symptoms accompanying it, and the impropriety of giving even the most accredited remedies in particular cases, all require the judgment of a medical practitioner. Neither, I presume, is it necessary, after what has been observed *on the peculiarities of the canine constitution,* to insist much on the little certainty of deriving benefit from even professional attendance, unless such professional attendant should have made the diseases of dogs an object of particular inquiry. Fortunately for the race, Mr. Youatt, who first studied under me, and who has since far outstripped his master, offers a ready acquirement of canine pathology, by making his Public Lectures at his own Theatre, as well as at the London University, embrace the diseases of Dogs, to which subject it is well known he has for many years successfully given his attention. His humane endeavours are, therefore, directed to qualify future veterinarians for this unique practice, as well as to fill up the present gap, by lending his professional aid to the animal himself, either by personal attendance, or written consultation; and I should fail in my duty to the cause of humanity, to the possessors of dogs, and to Mr. Youatt also, if I did not strongly recommend application to be made to him, wherever interest is excited with regard to the health of any domestic animal what-

ever, but of the subject of my present pleading (the dog) in particular. Mr. Youatt's residence in the metropolis, I need hardly state, is in Nassau Street, Middlesex Hospital.

CLASS I.

Phlegmasiæ, or important Inflammatory Affections.

Idiopathic or Primary Fever is not very apparent in the dog, although our present knowledge will not allow us to deny its occasional existence. We are, however, certain, that if it ever does exist in its simple and uncombined state, it does not often remain so; but is usually, in its early stage, translated to some individual organ, or set of organs, and then runs its course as *symptomatic fever*, which is by no means uncommon in the dog: on the contrary, prominent instances are offered us in the fever of distemper, and in the fever of rabies; in both of which there is evidently, throughout the system generally, a state of diffused inflammatory action: and although both of these partake of the nature of specific affections, yet the anomalous symptoms of each are such as to render it difficult to fix their original seat of attack, or to establish their true characters.

Sub-Class I.

Inflammation of Mucous Membranes.

SPECIFIC CATARRHAL DISEASE, OR DISTEMPER.

The *Distemper*, as characterizing an individual disease, though a very absurd and indefinite term, is become so conventional, that it is not easy to rid our descriptions of it. It is thought to have gained this name from the same source that we derived the disease itself, the French; with whom it is called *La Maladie*. It is, however, possible that it was called distemper after the

epidemic catarrh of horses, which being a common complaint long known by that name, and in some respects not unlike it, might readily occasion it to be so called. This scourge to the canine race, now so general, does not appear to have been known a century ago[5]; and throughout the European continent it was, until lately, described rather as an occasional epidemic which visits the different countries every three or four years, than as a settled constitutional guest among dogs, like the glanders of horses, or the measles or hooping cough in the human[6]. Our continental neighbours appear to have transmitted it to England: and here also it seems first to have appeared rather under the type of an accidental epidemic, but which is now become, by some morbid combinations, a permanent disease, to which every individual of the canine race has a strong inherent liability. That we imported it, is evident from the circumstance, that the earliest notices we have of it in English sporting works

[5] In opposition to this *late* appearance of the distemper, it has been conjectured that it was not unknown to the ancients, and was called the *Angina*, being one of *three* diseases to which dogs, according to them, were liable; Madness and Podagra forming the other two. But an attentive examination of the symptoms, as detailed by Aristotle, Ælian, and such other ancient authors as have left us their observations on the canine race, will clearly shew that the *distemper*, as it is known among us, was unknown to them. Their *angina* appears to have been an accidental epidemic, which confined its attacks almost wholly to the throat, producing in us imposthumes, like quinsy in the human; but the grand characteristic, of primary and continued discharge from the nasal mucous membranes, is wholly unnoticed.—See *Ælian de Nat. Animal*, lib. iv, c. 40; *Aristotle Hist. Animal*, lib. viii, c. 22, &c. &c.

[6] In the *Grand Encyclopédie Méthodique* the disease is thus described: "Il c'est jetté, il y a quelque années, une maladie epidémique sur les chiens "dans toute l'Europe; il en est mort une grand partie sans que l'on pût "trouver de remède au mal."—*Livraison LIX Chasses.* In the *Dict. Vet.* of H. D'Arboval, we also read, "Selon quelques personnes, il n'y a pas long-temps que l'on connaît cette maladie en Europe, et ce serait seulement vers le milieu du siècle dormir qu'elle s'y serait manifestée; quelque auteurs prétendent meme qu'elle a été importée d'Angleterre en France en 1769; cependant on se rappelle qu'au mois de Mars 1714, on l'a vue régner comme epizootiquement dans nos provinces méridionales, avec complication d'angine gangréneuse. Peut-être a-t-on confondu, et est-ce en Angleterre qu'elle s'est introduite vers le milieu du siecle dernier, apres y avoir été apportée du continent, où elle aurait pu exister depuis bien plus long-temps? C'est du moins ce qu' Edouard Jenner semble laisser entrevoir."

are subsequent to its announcement in the pages of similar continental publications; and though a few among their writers affect to attribute it to British origin, the best informed think otherwise. It is a disease of the most protean character, assuming such different appearances, and exhibiting such anomalous symptoms, as to render it extremely difficult to define; and until, by a long and diversified series of experiences, we have been able to separate its true pathognomonic from its occasional symptomatic phenomena, it is in vain to expect it. The few writers who have noticed it among ourselves offer full proof how little is really known of it[7]: and with our neighbours, the French, the discordances in opinion relative to it, are more than equal to our own; numerous as have been the individuals among them who have made an object of inquiry. Mons. Hurtrel D'Arboval, the best veterinary gleaner the continental field produces, bears me out in this assertion[8]. Notwithstanding the fixed and per-

[7] Dr. Darwin, it is true, characterized it as a *debilitating catarrh*; but it is evident he took a very superficial view of its whole nature and consequences, when he considered the only treatment necessary, was, that the air should be allowed to pass freely over the ulcerated surfaces of the nose. If the schneiderian membranes were the sole seat of the disease, there might be some shew of pathological reasoning in this; but as an early participation is made either with the lungs, the intestines, or the brain, from which it derives some of its strongest characters, so it is evident the rationale of Dr. Darwin falls to the ground. The further absurdity of directing that distempered dogs should be allowed to drink from a stream, that the contagious mucus of the nostrils, having escaped one passage, may not again enter another, and thus re-poison the dog, also proves his erroneous views of it. The philanthropy of Dr. Jenner induced him to turn his attention to the same subject, in hopes to ward off its consequences by vaccination; in consequence of which he has drawn an outline (in vol. 1 of *Med. and Chirurg. Tracts)* of a disease which is, as well observed by Mr. Youatt, "made up of distemper and rabies, and unlike both."

[8] "Plusieurs auteurs l'ont en outre considerée comme une espèce de gourme, comme une maladie dépuratoire, comme le résultat d'une crise salutaire qui débarrasse la nature, et on l'a comparée à la gourme des solipèdes, et à la petite-vérole de l'espèce humaine. On a même essayé l'inoculation pour la rendre plus bénigne, et des médecins, entre autres Sacco, ont été, jusqu'à avancer qu'en inoculant la vaccine on empêche le développement de l'affection, s'appuyant à cet égard sur ce qu'elle affecte plus particulièrement le jeunes chiens, sur ce que les chiens âgés en ont été atteints dans leur jeunesse, sur ce qu'elle

manent character the disease has now assumed, it still occasionally rages in an epidemical form; probably it is rather more prevalent in the spring and autumn, but it is to be met with at other seasons also. It is likewise endemial, and attacks the dogs of a particular district, leaving others comparatively free. When it shews itself as an epidemic, its versatility of character in different seasons is often remarkable. I have seen it accompanied with marked biliary affection in every dog attacked that season: many of the cases of that period had also a pustular eruption. I have seen it also make its appearance, in a few instances during one particular period, by a phlegmonous tumour of some part of the body, but principally of the head. In the summer of 1805, many of the distempered subjects were attacked with a peculiar and painful spasmodic colic, which neither constipated nor relaxed the bowels; but after continuing acute two or three days, usually terminated fatally. In the few cases which ended favourably, active purgatives of calomel and aloes appeared beneficial. It may also be remarked, that this is not occasional only, but

ou se manifeste qu'une seule fois dans les même individus, et sur se que ceux qui ne l'ont pas en peuvent la contracter parcequ'elle est contagieuse; mais il ne faut pas en conclure qu'elle soit particulière aux jeunes chiens. On l'a aussi comparée au croup des enfans, sans indiquer les rapports qui peuvent ou non exister entre ces deux états maladifs. Arquinet a reconnu la maladie des chiens à Pizénas au moins de Juillet 1787, et il ce plaignait alors des grand ravages qu'elle faissait aux environs depuis une vingtaine d'années Chabert, l'a vue très répandue aux environs de Paris dans les années 1799 et 1800. Assez généralement commune à Lyon et aux environs, elle y a réyné pendant les étés 1818 et 1819 sur un grand nombre de sujets, et l'on s'est assuré, à cette époque, que la chaleur de l'atmosphère lui avait communiqué un caractère de malignité rare. On la traite fréquemment aux ecoles vétérinaires."—*Dict. Vet. H. D'Arboval, art. Maladie.*

In the last edition of this work, I expressed a doubt whether the other species of the canine genus were liable to this disease. The above author, however, asserts, but without stating his authority, that it has been seen in the cat, the wolf, and the fox: the cat certainly is occasionally subject to a virulent coryza; but I am not aware that the affection bears the other specific characters of the complaint, as its obstinate and fatal diarrhœa, and liability to be translated to the nervous system, and its contagious nature. Neither am I at all aware that it has ever been seen in the fox: there is a vulpine mange, without doubt; but whether a *specific* catarrh exists also, is not, I believe, known among us.

that whenever distemper rages as an epidemic, it commonly assumes some particular characteristic type, without its usual versatility. One year shall be remarkable for the harassing and obstinate diarrhœa that appears; another for the more than usual tendency to epilepsy and spasm; while in a third, a malignant putrid type will sweep off most of those affected.

Causes.—Constitutional liability may be reckoned as a principal among these; and it is so inherent in the canine constitution, that very few escape it altogether, the predisposition alone being itself sufficient to generate it, although it is probably more frequently assisted by some occasional cause, as cold, &c. Contagion is another fruitful source of it; and however a few persons may doubt the contagious nature of distemper, those who have taken the pains to examine the matter, are as convinced of it as the force of facts can make them. Dogs living out of doors principally, and which are thereby rendered healthy and hardy, will sometimes bear up against the predisposition for a long period, and some as long as they live; but such even, if they become exposed either to the effluvia, or to the contact of the morbid secretions on a mucous or an ulcerated surface, very seldom escape it. In many cases, the slightest application of it, or even being exposed to the air impregnated with the exhalations from a distempered dog for a few minutes, is sufficient for the purpose. As it is communicable by the contact of the diseased catarrhal secretion, it may be supposed that purposed inoculation readily introduces it into the system, and such is the fact. Nevertheless, at times the constitution is not open to receive the contagion, and not only will inoculation fail to produce it, but also constant communication, and every other means whereby it might be supposed communicable. At some future time, however, the disease will be readily produced in the same dog, by apparently less active agencies. The *occasional causes* are numerous: whatever tends to produce debility in the system is a grand one; thus distemper frequently follows other diseases, as pneumonic attacks: the confinement and treatment which bad

mange requires is observed to produce it also; and the tabid and ricketty very rarely escape it in its severest form[10]. Cold accidentally applied, as washing without drying afterwards, or throwing a puppy or young dog into the water, has often brought it on; forcing such a one to sleep exposed, does the same. Sudden hæmorrhages, and an immediate change from a full to a low diet, or an unusual day's fatigue, are each of them causes that I have seen produce distemper[11].

The period of its attack follows the same uncertainty as marks its other phenomena. I have known it to affect puppies of a few weeks old, where it might be supposed that the constitutional predisposition alone could have produced it: this occurs particularly to the diminutive breeds, as pugs, very small spaniels, pigmy terriers, Italian greyhounds, and other minute varieties; in which cases it is almost invariably fatal. It more commonly, however, makes its appearance between six and twelve months: among country dogs it is protracted to the period of full growth often; but no age is exempt from it, and it is not uncommon to see it in three, four, or five year old dogs, with which it usually proves extremely severe. Neither is its attack confined to once; it will now and then appear not only a second, but a third time

[10] Mr. Youatt observes the same also. "When (he says) I see a puppy with mange, and that peculiar disease in which the skin becomes corrugated, and more especially if it be a spaniel, and pot-bellied or ricketty, I generally say I can cure the mange, but that the dog will soon after die of distemper: and it so happens in three cases out of four."—*Veterinarian*, No. 26, p. 76.

[11] The French entertain an opinion, that feeding dogs on animal food is productive of distemper. At the Parisian Veterinary School the whelps of a bitch were divided; one half were fed on raw meat, and the other half on soup and vegetables. Of the first division each contracted the distemper; of the latter, one only became affected, and that slightly; which circumstance was thought confirmatory of the opinion; but it is not difficult to prove that this conclusion is neither consistent with reason nor fact. We know dogs to be naturally carnivorous; and it is not reasonable to suppose, that feeding them after the method which nature pointed out would render them *more* obnoxious to disease. It is likewise in direct contradiction to fact, because nothing so tends to keep off distemper as flesh feeding and high condition. I have invariably observed, that the fattest puppies bore up longest against the disease, and weathered it best when it did arrive.

even, an instance of which fell under my own notice, where I was assured by a lady of great respectability that a very favourite dog, then very ill of the disease, had been twice before distempered with the same, with intervals of two years between each attack, the first of which was, if my memory serves me aright, in France, the second in India, and at last the cruel complaint carried off this faithful companion of an affectionate mistress in England. The dogs used in rural economy, and yard dogs, are not treated by it with equal virulence; but wherever man has interfered in forcing an artificial breed, and in maintaining and perfecting a degree of forced excellence, there the disease is always severe. It is thus that it is so fatal to high bred hounds, pointers, setters, and spaniels; and to terriers and greyhounds it is even more so. Mr. Youatt observes, that few dogs imported into this country as exotics do well with it; thus the greater part of the northern dogs brought by Captain Parry were carried off by it within a twelvemonth. Some breeds possess an *hereditary* tendency to have it worse than others of the same kind: litter after litter of some sporting strains will hardly yield more than one or two survivors. In such case, I would advise the breeder to cross the race, or to altogether try a new one.

Symptoms.—These are marked throughout with such variety, that it is not easy to set before the reader any strictly diagnostic sign or signs: even the nasal defluxion, so common to the complaint, does not always appear, until the distemper has made some progress; and sometimes also in the midst of its most fatal course it is arrested. Nevertheless there are certain symptoms of distemper usually present in most of its cases. One of the earliest of these is a short, dry, husky cough, which is followed by a lessening of the appetite, of the flesh, strength, and spirits: the coat also begins to stare, and the eyes to wink in a full light, as though painfully affected by it: they also, if observed in the morning, exhibit the remains of a little hardened mucus, which may be seen adhering to the inner corner of each, while a

general cloudiness of the cornea steals over its surface: the nose also is bedewed with a watery discharge, greater or less, as the membranous linings of the orbits and nasal cavities are more or less inflamed; in which state it may sometimes remain for two or three weeks without much alteration; it eventually, however, increases, and changes from a limpid watery fluid to a muco-purulent discharge, which flows down the face from the inner corner of each eye; and, as the disease becomes more intense, it frequently glues up the lids during the night, and blinds the dog, until his efforts have opened them. The nasal discharge, which is first thin and watery, becomes muco-purulent, and next one of direct pus, by which his nose is no less closed up each morning, by the viscid exudation, than his eyes. As the intensity of the mucous inflammation extends, the cough also, which was at first a slight huskiness of expiratory effort only (or perhaps hardly existed at all, for in some cases but little cough attends the early stages), increases to a distressing, harsh-sounding, and frequent attempt at forcing something up from the throat, by an effort that appears compounded of coughing and vomiting. To these appearances are usually added, wasting, weakness, listlessness, and lessening of the appetite also.

Thus far the symptoms detailed bespeak a true catarrhal affection, in the popular and usual acceptation of the term; by which is understood, an inflammation of the air-passages productive of defluxion. But as the true etymology of catarrh extends to inflammation of the mucous surfaces of the body generally, and as distemper deserves the full extent of signification, we shall now have to follow it as it extends itself over the one or the other of these mucous surfaces principally; or as it diffuses itself universally through the whole: dependent on which election, are the various types which the future progress of the disease assumes.

The *transmission of the affection to the brain or its meninges*, we are led to suppose takes place, not only by the epileptic symptoms of some cases, or the chorea and paralysis of others;

but even more certainly by the morbid appearances which present themselves after death. However, whether this occurs by continuity of substance, or by metastasis, we are not aware; although analogically it may be supposed to be by the former, in which case the inflammation may shape its course from the orbitary fossæ, or it may follow the more likely track of the pituitary sinuses. It is not, however, unlikely, that in some few cases a true metastasis does occur; for we occasionally have a very sudden attack of epilepsy, without any of those premonitory symptoms which usually predict, with malign certainty, the distempered fits; and there is more reason to conclude this, for a single fit, not followed up by another, particularly when it appears early in the complaint, is often not injurious; and therefore we may suppose it the consequence of a sudden metastasis, which as quickly returns to its original seat. In the ophthalmia and acute founder of horses, and in the gout of the human subject, these rapid transitions of disease are not uncommon.

Our knowledge of cerebral affections is very confined; but we have reason to suppose that the nature of morbid attacks on the sensorium and its dependencies, are varied like those of other organs. Probably also much may depend on the immediate portion affected, as whether it be the cerebral substance or its matrices: nor is it, therefore, unreasonable to conclude, that to this it is owing that the nervous affections which accompany the disease are of such different complexions. The early listlessness, the general prostration of strength apparent in all, unquestionably spring from the want of due administration of healthy nervous energy; but the phenomena that are here hinted at, are the consequence of a *morbid* energy, that is sometimes partial; in which case it is possible that the spinal brain is principally affected: sometimes it is total, when we may conclude that the cranial brain is the seat of attack. Under this view, we are not surprised to observe in some distempered cases, that the nervous weakness is confined to the loins and hinder extremities; and, while the dog is strong and active in his fore parts, the debility

of the hinder makes him totter, and almost drag the remainder of his body after him. Again, at other times, this paralytic affection is more universal, and affects all the limbs, and occasionally the head likewise; when the poor brute reels about as though he were drunk. Neither of these paralytic states, provided they are not followed up by more active symptoms, are of necessity or certainty fatal, but, on the contrary, often prove temporary only. In some cases, the nervous affection, instead of being paralytic, is one of true chorea, or St. Vitus's dance: a convulsive twitching attacks sometimes the head, sometimes one limb, less frequently is it universal from the first, but it often becomes so, doubling up the animal into the most extraordinary contortions. If these spasms increase in intensity, they will affect him as well when he lies down as when he stands, and asleep as well as awake: in this case he dies a miserable death from sensorial and muscular exhaustion. This affection, however, is likewise not necessarily fatal in itself; for although it may accompany the complaint throughout, it will often slowly disappear: but unfortunately it is too apt to end in fatal convulsions; and when it does not do this, it sometimes continues through life.—See *Chorea*, Class II.

The symptomatic epilepsy of distemper, or fits, may often be predicted with tolerable certainty, one, two, or three days before they come on; when, if judicious means are resorted to, they may be often averted; but, having once occurred, and the first fit being followed up by another within two or three days, it is very seldom indeed that any hope is left. The precursory symptoms are such as betoken a highly increased, though morbid energy in the sensorium From an emaciated, weak, and spiritless state, the dog becomes cheerful and alert; his dim and watery, or purulent eyes, become clear, and sparkle with animation; and if attentively viewed, the pupil towards its bottom presents an internal reddening of a fiery aspect; the nasal discharge, likewise, frequently either lessens, or is wholly suspended, and a momentary check to the accompanying diarrhœa

occurs sometimes also. How far these latter circumstances are in any way concerned in producing the epilepsy may be with some a matter of doubt; but the sudden cessation of these morbid discharges can be readily accounted for by the increase of the nervous power, which gives, for a time, new life to the diseased parts: and this view appears most correct, for as the symptomatic tokens of morbid energy precede the stoppage of the discharge, or are at least coeval with it, it would be placing effect before cause to conclude otherwise. It is worthy of remark, that the more active symptoms of the epileptic attack are often likewise preceded by a series of spasmodic irritations, which commence at the seat of sensation: thus it is very common for a day, sometimes for two or three days previously, to observe a convulsive twitching of the eyelids, or of the lips or face, which increases to a quivering of the lower jaw, such as we often witness in dogs eagerly watching the food preparing for them, or when expecting any wished for object, as the going out of the sportsman who has been harnessing for the field in September. Here again the symptoms are identified with excitement of the nervous energy. These spasmodic irritations, however trifling at first, soon increase to a direct convulsive champing of the whole mouth, as though something unpleasant in it was attempted to be got rid of: during this action, the poor animal stands distressed, though somewhat unconscious. The sensorial excitability is now arrived at such a height as to be readily acted on by trifling accidental circumstances; thus an angry word spoken to the dog, a sharp rebuke to another, or the sight of one in a fit, will be often sufficient to bring one on him also. It is by an observance of this effect that we are likewise able to understand why fondling or encouraging a dog under these *primary* attacks, will shorten the duration, and sometimes stop the fit altogether; and also we learn why the sudden stimulus brought on by dashing cold water in the face will often do the same; which practice should always therefore be resorted to on these occasions. When the epileptic fits, however, have

gained their full hold on the dog, these means usually fail. A partial or total mental alienation now takes place: when total, the poor brute is often perfectly phrenitic; he waters and dungs unconsciously, he tears up the ground, bites every thing around him, and not unfrequently himself also. When the fit is over, he shakes himself, and looks and acts as usual, unless the attacks have been very violent and long continued, when they leave him greatly exhausted and dispirited. The second, third, or fourth day from the first appearance of these *violent fits*, particularly when they recur every hour or two, commonly closes the scene, the animal being worn down by the additional strength and increased frequency of each succeeding spasm. It is during one of these fits, that a dog is apt to be sacrificed under a suspicion of *madness;* but the suddenness of the seizure ought to inform the looker-on of the total impossibility of its being *rabies*, which is always, in the worst cases, marked with some recollection, some knowledge, and which never exhibits the indiscriminate fury which characterizes epilepsy. See *Rabies*, Class VIII. In another form of epileptic fit, the dog is seen to walk round and round, his steps usually directed to one side only, with measured and solemn pace, but in general wholly unconscious to every thing around. This is not a very frequent form of the nervous affection; but I have seen several instances of it, all of which proved fatal. Query, may not this be considered as a partial attack on the brain, principally directed to one side of it?

Pneumonia, or inflammation of the lungs, is also another state which the specific catarrhal disease assumes, which it may be supposed to do, by passing through the larynx into the bronchia; the attack on which is shewn by symptoms of quickened breathing, with a short and more sonorous cough: if the inflammation extends, and direct pneumonia is the consequence, unless it be very timely put a stop to, it will carry the dog off.—See *Pneumonia*, Class I, Sub-Class III; where the symptoms and treatment are detailed.

The abdominal viscera, but more particularly the *intestines,* are oftentimes also very violently attacked in distemper. As regards the *bowels,* they are now and then affected very early in the complaint; but when the catarrhal affection is fully developed, with its usual marks of lassitude, thirst, disinclination for food, shivering, and creeping to the fire, or to some sheltered corner, with great discharge from the nose and eyes, it is then more usual for the intestines to become the subject of attack. Dogs brought up very hardily, and exposed much to the open air, and to a high and dry atmosphere, may escape diarrhœa altogether; but of the very young and delicate breeds, and indeed of all such as are more artificially treated, and are confined in cities and towns, the majority have first, diarrhœa, or simple excitement of the muscular contractions of the bowels, which hurries on the contents in liquid and unassimilated discharges of the aliment; and next follows the more serious affection of the intestinal mucous membranes, when the discharges change to a brown or lead-coloured mucus; and in these cases, when real fæces are evacuated, blood usually accompanies them, or it follows them in a few distinct drops. These appearances betoken an ulcerative state of the intestinal canal, and much danger is present: when more mucus and blood is passed than fæcal matter, and the fetor is extreme, the case may be considered hopeless.

The pustular and yellow appearances of distemper.—Protracted cases of distemper are sometimes accompanied by a pustular eruption, which extends over the surface of the chest and belly, and peels off in scales: but this integumental determination seldom affords any relief, and such cases almost invariably terminate fatally. This state is also sometimes accompanied with an hepatic affection of a very fatal character, which has been called among sportsmen the *yellow disease,* from its tinging every part of the surface of the body with a yellow hue; the urine also is of a deep yellow, the consequence of some morbid translation of the inflammation to the secreting vessels of

the liver. Mr. Youatt has found this state most frequent in the hound and greyhound; he also has observed it particularly where there is little catarrhal exudation from the nose, which I believe is the case, although I have also seen it accompanied by a profuse discharge; but it has then been in instances where the disease has run its course, under what I shall next proceed to notice.

The virulent and putrid type of distemper, which I have observed more common to hot weather than to any other season, although occurring at all times also, is a sequel to either the catarrhal, pneumonic, or hepatic states; and often itself rages as an epidemic form of the disease, assuming all the characteristics of typhus, gravior, or malignant fever. These cases are accompanied by great debility, rapid emaciation, and total loss of appetite; the pituitary discharge is great, very fœtid and bloody; bespeaking extensive ulceration of the nasal membranes, which sometimes is such as to occasion hæmorrhage from the part: while excoriation of the lips and cheeks follows the contact of the sanies which pours from the eyes, and even the ears also, in some cases: the gums bleed, the tongue is covered with a dark crust, sometimes is ulcerated, and the whole body emits a peculiar cadaverous smell. Stools are frequently passing, which resemble a mixture of mucus, blood, and putrid bile; and the wretched animal trails out a miserable existence, commensurate with the severity of his complaint, his own strength, or the means made use of to combat it: thus in some cases it lasts a few days, and in others it is protracted to two or three weeks even, before he finally sinks.

Post-mortem appearances.—These, as may be supposed, vary with the quantum of attack made on individual parts of the body. *The morbid anatomy of the head,* if we commence with the pituitary membrane, betrays, in every instance, diseased appearances, and mostly the whole extent of it, from the nasal fossæ to the frontal sinuses: the æthmoid cells and turbinated cavities are in the first stages very highly injected, in the next suffused with

pus, and in the last ulcerated; the degrees of which are however not always in the exact ratio of the symptomatic appearances; but nevertheless correspond in some degree thereto. Within the cranium, when violent epileptic fits have accompanied the disease, the membranes of the brain are usually found highly charged with blood; and when these have continued an unusual length of time, I have thought I discovered some softening of the cerebral substance itself. Mr. Youatt has found the base of the brain highly injected, and there is often an increase of the serous fluid. The spinal brain presents also phenomena in its morbid anatomy worthy of notice: when the paraplegia, or paralytic weakness of the hinder extremities, has been a marked feature of the complaint, the sheath of the spinal rope has been found more highly vascular, and suffused with an undue quantity of serum. I am also disposed to believe, from my own observations, that the tendency to *universal* paralysis often draws its origin from a morbid increase of the fluid of the ventricles of the cranial brain.

The morbid appearances in the thoracic viscera, in pneumonic cases, are often considerable, from their commencement in the larynx, along the trachea, and throughout its bronchial ramifications, which present inflammatory marks, and muco-purulent secretion in abundance. When pneumonia has been very active, coagulable lymph is sometimes found to be thrown out into the air-cells, congesting the lungs; at others, suppuration takes place, and minute, or in some cases larger, vomicæ are found. Less frequently adhesions are met with between the costal and pulmonic pleuræ, which occur in protracted cases; but serous effusion is not uncommon. The heart I have found gorged with blood in some of these cases, the pericardium inflamed, and its fluid increased in quantity.

The diseased marks of the abdominal viscera vary as follow: the stomach is not often much altered; sometimes, however, the villous surface is somewhat injected, particularly towards the pyloric extremity. The *intestines* usually bear their full pro-

portion of morbid characters, being often inflamed throughout, and occasionally are contracted in portions, particularly the ileum; while the colon is often beset with dark patches, and the rectum with ulcerated spots, when the diarrhœa has been violent and long continued[12]. The rest of the chylopoietic viscera, in bad cases, partake more or less of the morbid influence, particularly *the liver*, which I have sometimes seen much paler than natural, softer in texture also, and, as it were, macerated: in other cases I have seen it grumous, surcharged with blood, with its biliary duct and sac engorged with an hepatic secretion, as fœtid and decomposed as the matter of the stools themselves: in fact, the animal mass throughout, in the malignant cases I have noticed, presents a state of complete putrid solution.

Prognosis.—To form a decisive opinion of the result of any distempered case, and at almost any period of the complaint, is very difficult; and I would strongly recommend the veterinary practitioner never to speak confidently with regard to either a fortunate or unfortunate result, however flattering or however adverse the appearances may be. Very young dogs seldom live, puppies of a few weeks old almost never: the difference in these respects, however, between dogs brought up in a state of hardihood, and those petted and artificially treated, as well as between those living in the country and those residing in cities, is very great, and should influence the prognostic much. I have already shewn that different varieties have it worse than others, and that some breeds of the same variety possess a particular aptitude to fall under its attacks. The appearance of one fit very early in the complaint is not alarming; but if it be more advanced, it is truly so; and when followed up by a second and a third, the

[12] Mr. Youatt observes on the state of the intestines, "that if *they* have been *chiefly* attacked, we have intense inflammation of the mucous membrane, and, generally speaking, the small intestines are almost filled with worms. If the dog has gradually wasted away, we have contraction of the whole canal, including even the stomach, and sometimes considerable enlargement of the mesenteric glands." The value of these remarks, in a practical point of view, I need not point out.

case is nearly hopeless. When the eyes soon after its appearance betray a great impatience of light, and look red within, the dog will have it severely, and the extreme quantity of nasal discharge which follows will be apt to wear him down; if it becomes bloody, it will be still more likely to do so. When the catarrh degenerates into pneumonia, if it is at all intense, it is not often successfully combated. The diarrhœa commonly attendant on the complaint is very apt to prove so obstinate as to reduce the animal strength beyond the powers of the constitution to restore, even without the weight of the specific disease attached to it: when therefore the diarrhœa continues to resist medical aid, and is attended with tenesmus and bloody purulent stools, it will generally prove fatal. The breaking out of a pustular eruption, and a yellow tinge pervading the surface of the body, are usually precursors of death. The spasmodic twitchings which sometimes accompany the complaint, if constant and violent, expend the vital energies fast, and usually end fatally: this event may be almost certainly predicted, if the animal loses flesh fast under them; but let them be as violent as they may, and indeed whatever other unfavourable appearances may occur, if the dog continues to gain flesh, the chances are that he will recover.

The treatment of distemper will necessarily vary considerably, according to the mode in which the attack is made, as well as the age, constitution, &c. of the object of it. It is somewhat singular, that while the very best practitioners so often fail in their treatment of the complaint, we seldom meet with a sportsman or breeder of dogs, but who, according to his own account, can readily cure it, "being in possession of what he fondly flatters himself to be an infallible remedy for it." I once thought a remedy of my own discovery almost so: but though it remains a valuable one, it is far from infallible, and I suspect most of these are much farther from such a character: it happens however with these gentlemen, that, under the exhibition of some medicine (having met with two or three successful cases

which would perhaps have done well without any thing) such has been afterwards considered as the grand specific. But continued experience leads us to a conclusion, that although many different remedies are useful, according as one or other form of the disease prevails; yet that there is not, and I believe cannot be, a specific for this protean disorder. As most cases of distemper commence by cough or slight defluxion from the nose and eyes, with a failing in the ordinary appetite and spirits, and a gradual losing of flesh, an *emetic* is the first remedy; it clears the stomach and bowels, and sympathetically lessens the inflammatory action going on. Should the pulse or the state of breathing, or the violence of the cough, indicate any determination to the lungs, bleed by all means, to the amount of from three ounces to five or six, according to size, age, &c., particularly if the dog be in good case and moderately strong. The bowels should also be opened by a *laxative;* but if it is not found necessary to bleed, then substitute a mild purge for the laxative; unless the dog is either very young, the breed very tender, or there is much emaciation; in that case merely open the bowels by the laxative.

As an *emetic,* either tartarized antimony (*emetic tartar*) or calomel may be used; sometimes one and sometimes the other are to be preferred: when there is any disposition to purging already observed, give the tartar emetic only, in the form and quantity directed under *Emetics* (p. 84). In other cases, let the puke be made of equal parts of calomel and tartarized antimony, from half a grain to a grain and a half of each; or even two grains of each will not be too much for a full grown dog of the largest breeds. Mr. Youatt, with much judgment, prefers this form of vomit, on the grounds that it proves a laxative as well as a puke; and, as before observed, if there is not already any tendency to looseness, it is the preferable one. The articles used on these occasions by sportsmen, as Turpith mineral and crude antimony, are highly objectionable, on grounds stated in the general directions relative to emetics (p. 85). Salt also

should only be used for the purpose when the articles already prescribed are not within reach. The early insertion of a *seton* should depend on circumstances: if that state of impatience of light noticed in the symptoms presents itself, and the pupils look red within, and the cough is harsh, dry, and frequent; by all means insert one as soon as possible; but if, on the contrary, the discharge is become purulent and profuse; and particularly if the dog be not strong, but is losing flesh daily, by no means do so; the indiscriminate use of setons in distemper is calculated to do much harm. The same may be said of *purgatives*, of which I would again remark, that while the dog is full, and his inflammatory symptoms run high, two or three *moderate* purges are proper; forms of which may be seen at p. 86. Costiveness must, in all cases, be avoided; but it is best combated by *laxatives*, except in the very early stages, when, as observed, a purgative is admissible and highly proper; for unloading the bowels, like unloading the stomach, will tend greatly to lessen irritation, and reduce the inflammatory action of the heart and arteries; but at the same time that, under these views, they are valuable agents, we must not lose sight of the diarrhœa which is so fatal a symptom of the disease, and which too free a use of them might tend to bring on. These primary depleting means having been carried into effect, proceed with the following:—

Antimonial powder	2, 3, or 4 grains
Nitrate of potash *(nitre)*	5, 10, or 15 grains
Powdered ipecacuanha	2, 3, or 4 grains.

Make into a ball with the minor, medium, or major quantities, according to the size and age of the dog, and give two or three times a day, as the symptoms are more or less urgent; diminishing the quantities if they occasion sickness. When the cough is very distressing, by which pneumonic symptoms may be apprehended, add to each dose of these medicines from half a grain to a grain of digitalis *(foxglove)*. Should nothing new in the symptoms occur, it would be prudent every third or fourth day to repeat the emetic, and to keep the bowels open

also; but now more than ever avoid active purgation[13]. Should the disease take on still more active symptoms of pneumonia, or inflammation of the lungs, which will be known by the quick laborious breathing, the head being elevated, and the dog remaining in a sitting position instead of lying down, however fatigued; then follow the directions given under the head pneumonia, Class I, Sub-Class III.

Diarrhœa, or looseness, is one of the most obstinate and fatal accompaniments that attends distemper: it sometimes commences with it, and is then suffered to go unchecked, from a supposition that the complaint may be thus carried off; but it should never be allowed to go unrestrained for more than two days; and not even that time, if the disease be at all advanced, or the dog at all emaciated; otherwise he will be speedily brought so low as to be past recovery. In very young dogs, worms will often greatly aggravate the diarrhœa, and the malign symptoms in general. If any such appearances occur, or any suspicions arise that such is the case, treat as ordered under the head *Worms,* Class III; and then proceed with the most effective means of combating the flux, as detailed under *Diarrhœa,* Class III.

The epileptic fits of distemper are the most formidable of all the various types under which the disease rages. It occasionally commences by a fit, which should be instantly attacked by an active emetic, and that should be followed by a purgative; in

[13] It was in this stage of the complaint that I used to experience such beneficial effects from the *distemper remedy* first brought forward by me. That it acted, in many cases, as a specific, is most certain; for without any sensible effect the disease was suddenly arrested, and this so frequently, that I placed unlimited confidence in its general efficacy. I have now no longer any interest in the remedy, or connexion with the vender of it; and I make no doubt that when I had, I was too zealous in my faith in it: but I can with truth assert, that if I *now* had one hundred dogs in the distemper, I should not think I did them justice if I did not try it on every one. When it is beneficial, the effect is immediate: one dose has often cured; but when no amendment is observed from two or three consecutive daily doses, I should not recommend any further trial; for it will not benefit that case. When it does good, it acts so promptly, that it occasions surprise, and has been thus lauded to the skies: where it does not, it naturally disappoints, after so much praise, and is then by the other party blackened to the shades.

which case it often happens that no more appear[14]. But when a fit occurs in a more advanced stage of the disease, another will be almost sure to follow, unless such an impression can be made as to cause a counteraction. If a close observation is carried on, the symptoms noted will enable the treatment to take the start of the attack. First give an active emetic, and then follow that up by a brisk purgative. Mr. Youatt recommends a full dose of calomel united with opium: insert a seton in the neck, smearing the tape with blistering ointment. Should repeated attacks succeed, give the following to a medium sized dog every two hours, and half the quantity to a small one, in a spoonful of ale:—

Æther	1 drachm
Tincture of opium	half a drachm
Camphor	6 grains
Spirit of hartshorn	1 drachm.

Place the patient in a very warm bath, and retain him there twenty minutes, keeping him also both warm and moist some hours afterwards, by means of wrapping in flannel and placing before a fire: avoid irritation, force nourishment, and endeavour to shorten every fit, by sprinkling cold water in the face, and likewise by soothing language and manner, which have often the happiest effect in lessening the force and duration of the convulsion. If these means should fortunately succeed, continue to keep the animal quiet both in mind and person, and particularly refrain from allowing active exercise, which is very apt to bring on a recurrence of the fits. See more on this subject in the article *Epilepsy*, Class II.

The chorea of distemper is hardly less to be dreaded than the epilepsy; for if it is not so immediately fatal, it yet frequently leaves the dog helpless and useless for life. As soon, therefore, as

[14] I have observed that one, or even two, violent fits appearing thus early in the complaint, are not always followed by others, nor by any greater severity of symptoms than usual. Is such a fit at all similar to what sometimes precedes eruptive human complaints?

there is any appearance of spasmodic twitchings, if the dog be not much emaciated, or the nasal discharge very great, insert a seton; stimulate the spine every day; push a cordial tonic plan of medicines; with liberal feeding, and an occasional warm bath. See *Chorea,* Class II.

The debilitating stage of distemper.—I left off the continuous treatment of the disease, after I had pursued it to its sequel as a phlegmonous affection. Active catarrhal inflammation leaves it when the purulent secretion is fully established; that is, when pus flows abundantly from the nose and eyes; after which, whatever fever remains is of the symptomatic and often hectic type, unless active pneumonic or hepatic affection supervene. It happens, that when I had pursued the treatment of the disease thus far, it was convenient to stop, and introduce such occasional states as are apt to intervene between the first and second stages; as pneumonia, diarrhœa, epilepsy, chorea, &c. These being noticed, I shall now return, and continue the treatment of the true muco-purulent catarrhal affection; which having been attacked, as directed, by depletion and such other means as tend to combat the *acute* inflammatory state, must now be as actively pursued by other means; or a direct asthenic state, or one of *diminished* vital action, will take place of that where there had been *too much.* The means hinted at, are the judicious and liberal use of tonics[15], and which may with propriety be varied to meet the different complexions that the disease is still likely to assume. One of these is the continued discharge from the nose and eyes, with harassing cough, debility, and emaciation; which state I have

[15] Among these tonics, none are more efficacious than liberal feeding on the most nutritious and tempting food; which should be offered to the dog frequently, but not in cloying quantities. When the natural appetite fails, the animal may yet be often tempted by morsels selected by the hand of one he is accustomed to: but when even enticement fails to excite the effort to take food, then the dog must be forced with rich gravies, or gruel with ale and spices; not in large quantities at a time, which will probably be returned from the stomach, but in smaller and more frequently repeated dosings. Meat balls may also be forced down, even if liquid nutriment is returned.

found to be most advantageously treated by what, in old fashioned language, might be called a pectoral tonic[16].

Gum myrrh, powdered	2 drachms
Chamomile flowers, ditto	3 drachms
Gum Benjamin..... ditto	1½ drachm
Balsam of Peru	1½ drachm
Camphor	1 scruple.

Mix with conserve of roses into twelve, nine, or six balls, according to the size of the dog, and give one every four or six hours. Should the purulent flow become fœtid and bloody, add to the medicinal mass, cascarilla bark two drachms, powdered opium three grains; or if the expense be not objected to, of the quinine a scruple. I profess not myself to have made use of cantharides or Spanish flies, as a means of checking the inordinate catarrhal discharge; but I would strongly recommend that a trial should be made of them, when it did not appear to give way to the usual treatment: it may be done after the following manner:—

Cantharides, finely powdered	4 grains
Gum arabic.....ditto	1 drachm
Opium .....ditto	1 grain
Chamomile flowers ditto	1 drachm.

Make into twelve, nine, or six balls, and give one night and

[16] There is a fashion in our medical opinions, as well as in others. Mr. Youatt doubts the efficacy of gum resins and balsams; and such is my reliance on his judgment, that had he said he was convinced of their inefficacy from his own experience, I should, notwithstanding the benefit I may fancy I have seen attend their use, have even doubted myself; but when he observes, "that they are beginning to get into disrepute in the practice of human medicine," and when he appears to give this as the principal grounds of his objection to them, I must still maintain my opinion of their worth. Neither would their inertness in man necessarily prove them so in the diseases of the dog: we should fail to excite vomition in ourselves by any moderate quantity of calomel; or to excite sleep in the dog by any dose of opium. But these ingredients are most active in both these instances to the adverse subjects. I would, therefore, recommend them to the trial of the practitioner; and as long as they appear to do good, to continue them, but no longer. One thing in their favour is, that for years the compound tincture of Benjamin, known as the *Friar's balsam*, was a medicine in high repute in some kennels, where nothing beside ever was given. It formed also a nostrum of public sale and estimation, from experience in its efficacy.

morning, pushing it to three times a-day, if no amendment takes place.

The malignant type of the disease will be found very difficult to contend with; it is not, however, altogether hopeless, but it can be only successfully combated by prompt and unwearied attention. I would recommend the following for trial:—

Powdered catechu	1½ drachm
Quinine	1 scruple
Powdered opium	3 grains
Powdered ginger	1 drachm.

Mix with conserve of roses into eight, six, or four balls, and give one three times a-day, if the case appears desperate. This form is peculiarly adapted to those cases combined with obstinate diarrhœa, in which, while we are checking that by common astringents, we are losing ground by the hectic fever; but by using this we are fulfilling both intentions at the same time. It is also evident that we must vary our curative endeavours to prevent the septic or putrid tendency: if, therefore, the above should disagree or seem to fail in arresting the disease, either of the following mixtures may be tried; beginning with the first, and changing it for the second if it should produce purging, or not sit easy on the stomach, or if benefit does not follow its administration. Under either of these circumstances, the second may also be afterwards changed for the third. Should the price of the quinine be objected to in the prescription for the balls, substitute carbonate of iron, two drachms: if in the liquid mixture, supply its place by two drachms of each of the Peruvian and cascarilla barks: but if humanity be consulted, it will say, try the quinine.

Acetated water of ammonia (*Mindererus's spirit*)	4 ounces
Quinine	1 scruple
Tincture of opium	1 drachm
Powdered catechu	2 drachms:

Or,

Yeast	2 ounces
Decoction of bark	2 ounces
Powdered catechu	2 drachms
Powdered opium	10 grains:

Or,

Spirit of nitrous æther	half an ounce
Camphor	half a drachm
Aromatic confection	2 drachms
Chamomile infusion	4 ounces
Powdered catechu	2 drachms.

Give of either, one, two, three, or four table spoonfuls, according to the size of the dog, every three or four hours: and if the diarrhœa should be thought any bar to the administration, increase the opiate to forty drops with each dose, but continue the medicine, if possible, alone; if not, alternate it with the remedies detailed under *Diarrhœa*, Class III. If, however, every remedy only increases the alvine flux, then all but astringents must be discontinued; for every other means must give place to attempts at restraining this most fatal state, even to the continuance of the antiseptic and astringent plans together, if they be found wholly incompatible with the state of the bowels.

Cleanliness is very desirable in every stage of distemper, but in the putrid type it is essentially necessary, as well to the recovery, as to the comfort of the animal: the free access of pure air is also indispensable, and the removal of every thing likely to harbour putrid exhalations is highly proper: the litter should be constantly changed, or, if any other bedding be used, it should be washed and dried, or replaced by other. The apartment, kennel, &c., should be cleansed of the putrid effluvia by the use of either the chloride of soda, or lime, according to the directions accompanying those valuable disinfectants; and which, either of them, particularly the latter, is able to do to admiration: the former is also even more useful in another point of view. I have noticed the phagedenic ulcers which are apt to break out over the face, nose, mouth, &c.: and of the malignant tumours which form in the submaxillary glands, and sometimes in the parotid also; or, in other words, that break out at the side of the head, and in the angle of the jaws. These take on often a gangrenous appearance, spread over the face, offer a most offensive putrid

discharge, and by their irritation greatly aggravate the dangers and sufferings of the animal. These ulcerations, even when extending fast, by being bathed with a solution of the chloride of soda properly diluted, are in most cases brought into a healing state, and in all are deprived of their malignancy, prevented from multiplying, and rendered inoffensive.

I have hitherto offered no directions on the subject of the *ophthalmia*, which is so liable, in this virulent kind of distemper, to attack either one or both eyes with such an intensity of inflammation, that abscess forms on the surface of the cornea, usually about the centre of the pupil; the ulceration of which sometimes makes its way through the coats, lets out the aqueous humour, and substitutes around its edges fungoid masses: in fact, such apparent havock takes place, that all hope of recovery would seem at an end: yet, surprising as it may seem, this apparently irreparable disorganization is so completely removed, and the true organization so restored, that no traces of the injury remain afterwards.—See *Ophthalmia*, Class X.

Vaccination and inoculation with the matter of distemper have been both practised, one for the *prevention*, the other for the *mitigation* of the disease. *Vaccination* so performed, is a proof of the gullibility of the public, and readiness to believe what is wished, particularly when it comes from a popular source, and where it would be *unfashionable* to disbelieve. My early experiments convinced me of its total inefficacy as a preventive of distemper; but so positive were the assertions to the contrary, that I spoke diffidently. Dr. Jenner had lent his name to the error, and I make no doubt he believed what he asserted; but he had not waited the proof. Vaccination, it is now sufficiently ascertained, neither exempts dogs from the distemper, nor does it appear at all to mitigate its severity; for I have seen a sufficient number of dogs which had been vaccinated afterwards die of distemper. *Inoculation* with the *matter of distemper* is equally ineffectual in *mitigating* the complaint, even when it is borrowed

from the mildest forms: on the contrary, many dogs, which have taken the disease by inoculation, have had it with peculiar severity, and others have sunk under it.

INFLAMMATION OF THE MUCOUS COATS OF THE INTESTINES.

Dysentery, as an idiopathic affection in dogs, is very rare; but an irritation productive of morbid and inordinate mucous discharge is produced by various causes. A principal one is the consequence of long-continued diarrhœa common to distemper, as so lately shewn.—See also *Diarrhœa,* Class III. Another is the result of bilious inflammation.—See *Enteritis,* Class I, Sub-Class IV. A third cause is the introduction of poisons.—See Class VIII. Super-purgation will bring it on, as noticed with Enteritis and Diarrhœa: the presence of worms will likewise occasion it.—See *Worms,* Class IV.

Inflammation of the Mucous Coats of the Bladder.—See *Cystitis,* Class I, Sub-Class IV.

INFLAMMATION OF THE AIR-PASSAGES, OR COUGH.

Idiopathic catarrh will sometimes attack dogs, producing the same symptoms as a *common cold* usually does with us; as defluxion from the nose and eyes, with cough and slight symptoms of fever. The *treatment* proper will be an *emetic;* mild doses of antimonial powder (from two grains to five), moderate feeding, open bowels, and no exposure to wet or cold.

Symptomatic coughs are of several kinds, as that of distemper, of asthma, of pneumonia or inflamed lungs, and of worms.—*See these several affections in the Index.*

Sub-Class II.

INFLAMMATION OF THE BRAIN (PHRENITIS).

Symptomatic phrenitis only is found in the canine catalogue; but of this there are some varieties, dependent principally on the diseases which they are accompaniments to. The *epilepsy of distemper* is an instance of cerebral inflammation, known as well by post-mortem examinations as by the consequences: at the same time it may be urged, that the phrenitic symptoms are seldom of sufficiently long continuance to assure us that the inflammatory state is not conjoined with some other irritations: I shall leave this to the judgment of those who are disposed to study the description of distemper.—*Rabies* in a few instances produces some decisive violence, and some mental alienation in the dog, as we know by his attack on men and brutes that he has been acquainted with, and also by the morbid appearances which present themselves after death.—The epilepsy attendant on *worms*, and that which attacks dogs after long confinement, are probably compounded of a spasmodic attack on the sensorium and of determination of blood to it: in both cases there are some phrenitic symptoms occasionally present.—*See these several subjects in the body of the work.*

Sub-Class III.

Inflammatory Affections of the Thoracic Viscera.

PNEUMONIA, OR INFLAMMATION OF THE LUNGS.

Pneumonia is not an unfrequent complaint among dogs, and in some years it rages in an epidemic form, when it destroys numbers; in other cases it may be directly traced to the action of cold on the body. I have seen it brought on, in a great number of instances, by the cruel practice of clipping or shearing rough dogs in cold weather. Throwing dogs into the water, and afterwards neglecting to dry them, is also not an uncommon cause:

shutting a dog out for the night houseless; in fact, any unusual exposure to cold may occasion it. In many instances it is brought on by distemper. The epidemic pneumonia has usually proved rapid in its progress, and very fatal: at all times also it is to be dreaded, for in most instances it arrives at such a height, before it attracts sufficient notice, as to baffle all attempts at reducing the inflammation. During one of the periods in which it raged in an epidemic form (a warm mild spring), few of those attacked survived beyond the third day; about which time most of them were suffocated by the serous effusion poured into the chest. This, though a frequent mode of its termination, in general cases, is not the only fatal one; for I have seen it also destroy by congestion within the substance of the lungs. It yields, however, to a prompt and judicious treatment, sufficiently often to make every effort worth the trial. Inflammation of the lungs shews itself by a quick laborious respiration; the heart beats in a very rapid but oppressed manner. The head is held up to enable the dog to breathe more freely; he also prefers sitting to lying down, for the same reasons; which circumstances alone are diagnostic of the disease. Considerable moisture distils from the nose; which, like the ears and paws, is in general extremely and unnaturally cold. A short quick cough is often present, but not invariably so.

The *cure* should be begun by bleeding, and that very largely; but it must be particularly remembered, that it ought only to be attempted early in the complaint: if it is performed after the second day, the dog commonly dies under the operation. This circumstance should never be forgotten by a practitioner who may happen to be called in, the recollection of which may save him much mortification and disgrace. The first bleeding, if early attempted, may prove useful, provided it is a full and copious one. For method and quantity, see *Operations*. The whole chest should likewise be immediately blistered between the fore legs, and behind the elbows, first removing the hair, and finishing by covering the parts with a cloth carefully secured. If blis-

tering ointment is not at hand, oil of turpentine with flour of mustard, well rubbed in, and repeated at intervals of two or three hours, will do nearly as well. Give a purgative, throw up a clyster also, and in two hours commence with the following:—

Powdered foxglove *(digitalis)*	12 grains[17]
Tartar emetic	3 grains
Nitre	1 drachm.

Mix, and divide into six, nine, or twelve powders, or form into balls, and give one every two or three hours: but if there should be much cough present, then substitute the following:—

Tincture of foxglove	1 drachm
Tartarized antimony *(tartar emetic)*	3 grains
Nitrated potash *(nitre)*	1 drachm
Oxymel	2 ounces.

Give from a tea to a dessert-spoonful of this mixture every two or three hours: should either of these medicines act as a vomit, moderate the dose. It is peculiarly requisite also to keep the dog in a cool temperature, and, provided his skin is screened from the access of cold, it is no matter how cool the air he breathes may be. If amendment should not be apparent in four hours, the bleeding may be repeated, and the blistering likewise. But if, in spite of these renewed applications, the nose and mouth continue intensely cold, the head remains elevated, and the motion of the heart indistinct, a fatal termination may be expected.

CANINE ASTHMA.

Whatever difference there may be between the human asthma, considered as a spasmodic affection, aggravated by paroxysms, and that of our present subject, which I consider as more allied to morbid alteration resulting from slow inflammation, yet in its leading symptoms it so nearly resembles that type of the disease called the aërial or dry human asthma, as to allow of the

[17] In the administration of digitalis, the pulse should be frequently examined: it is desirable that this active remedy should be administered vigorously until the pulse is found to intermit; after which time, it should be less actively pursued, for fear of carrying the enervating effect too far.

application of this popular term. The inhabitants of country towns and villages can form no just idea of the prevalence and destructive nature of this disease in cities and confined neighbourhoods, where it is a most common complaint. It derives its origin from the artificial mode of life forced on pet and fancy dogs, whose close confinement, and over feeding, lead to an extraordinary accumulation of fat: and according to the degree in which these predisposing causes have been applied, the disease appears earlier or later in life. In some it comes on at three or four years old: in others, rather less artificially treated, it may not appear until seven or eight: but, sooner or later, most dogs, confined in close situations, deprived of exercise, and fed with heating and luxurious food, become subjected to it, and as certainly have their lives shortened by it.

The disease is usually very insidious in its attack, commencing by a slight cough, which returns at uncertain intervals, and is therefore hardly noticed. Gradually, however, the cough becomes more frequent and troublesome, and assumes its peculiar harsh, dry, and sonorous character; and is then often mistaken for a bone in the throat, or for sponge having been designedly given. It becomes now excited by every change of temperature, food, or position; until, at length, it is almost incessant, and even the sleep is interrupted by it: the breathing becomes also affected; sometimes it is very laborious and painful. The irritation of the cough frequently excites nausea and sickness, but nothing is brought up except a little frothy mucus from the bronchial passages, where its presence forms the source of the irritation. When the disease is formed, its further progress is quicker or slower as the exciting causes are continued or discontinued; the modes also by which it produces its fatal termination are not always the same.

In some cases, the irritation of the cough, and the accompanying hectic, emaciates and wears down the animal: in others, the pulmonary congestion stops respiration, and kills by a sudden suffocation; or the obstruction the blood meets with in its pas-

sage through the heart, occasions accumulation in the head, and convulsive fits are the precursors of death. Now and then a rupture of the heart, or of some large bloodvessel, suddenly destroys: but by far the most common termination of the complaint is in dropsy, or serous collections within the chest or belly, or both, but most frequently of the latter. In these cases, the limbs and external parts of the body waste, but the belly increases in its size; the legs also swell; the hair stares; the breathing becomes very laborious; and, in the end, suffocation ensues.

The *morbid appearances, on dissection,* are by no means uniform, but in every instance they are considerable, particularly within the chest. Adhesions sometimes first attract our notice; next the substance of the lungs, which is occasionally emphysematous from ruptured air-cells, and they slightly crepitate under the touch. I have also found a muco-purulent extravasation within the air-cells; but the appearance most common to them has been, a total change of their natural structure into a granular bluish mass. In some instances, a morbid translation of the external fat was found to have taken place from without inwards; by which the diaphragm, large vessels, and the interstitial membranes of the chest, becoming obstructed and overcharged with adipose substance, the respiratory functions were at length totally suspended. The abdominal viscera are very frequently but little affected; occasionally, however, the mesenteric glands are enlarged, and the liver almost nonsecretory of bile; and still more frequently the spleen particularly has been found greatly enlarged and diseased.—See *Splenitis, Chronic.*

The *cure* of the disease is always a matter of much uncertainty, and unless it be attempted in the first stages, and before visceral injury has proceeded too far, the chances of complete recovery are but small; yet we may often palliate the symptoms. Artificial habits, particularly those of want of air and exercise, with superabundance of food, being in nine cases out of ten the cause, it is evident, that without these are in future rigorously and judiciously attended to, medicine will avail little. It is unfortu-

nate, that the accumulation of fat is, in some dogs, so much a disease, that even a very small quantity of food will fatten; but even that quantity must, however, be still further reduced, so as to produce absorption of the oil; or it will be in vain to hope for amendment: means to effect which are detailed under the head *Feeding*. An airy place ought to be allowed the animal to sleep in; but above all, regular and judicious exercise must be given; not violent, but gentle, and long continued. The absorption of the accumulated fat will be materially assisted by a regular exhibition of purgatives once or twice a-week. Bleeding now and then gives a temporary relief; and in the incipient stages, when there is any suspicion of inflammatory action going on in the air vessels, it is proper; but in the advanced stages it seldom does much good.

Of the various remedial plans I have pursued, none have appeared more uniformly beneficial, than a course of emetics, steadily persisted in twice a-week: see *Emetics*, p. 84. In the intermediate days *alteratives* were administered, with the occasional use of a purgative, provided the dog was strong, fat, and plethoric; otherwise this was dispensed with: but it should be remembered, that this remedial plan must be uniformly and long continued, to ensure permanent benefit. The alterative is as follows:—

Calomel *(submuriate of mercury)*..... half a grain
Nitre *(nitrate of potash)*..... .... 5 grains
Cream of tartar *(supertartrate of potash)* 10 grains
Antimonial powder..... 2 grains.—Mix.

This may be given either as a powder, or it may be made into a ball with honey; the dose being repeated once or twice a-day, according to the urgency of the case: the quantities may be also lessened or increased, according to the effect produced; the recipe is intended for a dog of middling size. On the morning that the emetic is given, the alterative should be omitted; and where the alterative is repeated night and morning, it will be prudent to watch the mouth, that salivation may not unexpectedly

come on. If this should happen, discontinue the medicine for some days. Where also the calomel has been found to disagree, I have substituted the following alterative with benefit:—

Nitre *(nitrate of potash)*..... 3 grains
Tartar emetic *(tartarized antimony)*..... a quarter of a grain
Powdered foxglove *(digitalis)*..... half a grain.—Mix.

This may be given as the other, and alternated with the emetic also, watching the effects of the foxglove, through the medium of the pulse, that they may not be too violent.

In some cases of long standing, where the attendant cough has been very harsh, noisy, and distressing, I have added ten, twenty, or thirty drops of tincture of opium *(laudanum)*, or the eighth, sixth, or fourth part of a grain of opium, to each alterative with advantage. In other instances, the cough has been best allayed by an evening opiate of double the strength before prescribed. I have, now and then, experienced benefit also from the use of the balsamic gums, which may be all tried, therefore, in obstinate cases. Relief has been obtained likewise from the following, given every morning:—

Powdered squill..... half a grain
Gum ammoniacum, powdered ..... 5 grains
Balsam Peru ..... 3 grains
Benzoic acid ... . 1 grain
Anisated balsam of sulphur to form a ball.

Or,

Inspissated juice of the white garden lettuce ... half a drachm
Tincture of balsam of Tolu..... 1 drachm
Powdered gum arabic and extract of liquorice 1 ounce each
Make into balls, and give one night and morning.

The following I have found to mitigate the severity of several cases, and it deserves a trial:—

Extract of cicuta..... half a drachm
Extract of hyoscyamus ..... 10 grains
Powdered digitalis ..... a scruple
Conserve of roses to make 10, 8, or 6 balls, according to the size of the dog;

of which one may be given night and morning; increasing the

dose if it occasions no disturbance in the system. Mr. Youatt has, I believe, found benefit in asthmatic cases from the exhibition of prussic acid: but the powerful nature of this remedy requires *professional* assistance when it is administered.

Sub-Class IV.

Inflammatory Affections of the Abdominal Viscera.

INFLAMMATION OF THE STOMACH (GASTRITIS).

The stomach is less frequently affected with idiopathic inflammation than the bowels; it is, however, now and then the seat of primary inflammation, and it often becomes affected when the bowels are so. In idiopathic gastritis, the sickness is incessant and most distressing; the thirst is unquenchable, and whatever is taken in, is immediately thrown up again. There is also very great distress in the countenance, but the dog evinces less disposition to hide himself than in simple bowel affection: the mouth slavers, and is hot and cold by turns. The disease, when violent, is seldom relieved, even by any treatment: but when it does admit of cure, it is done by bleeding early and largely, both by the neck, and by leeches to the region of the stomach. The warm bath should be used, injections should be repeatedly administered: the chest should be blistered also; but nothing ought to be given by the mouth. The stomach is likewise liable to inflammation from poisonous substances: a very marked and peculiar one results from rabies. The medical treatments of these varieties are detailed under the head *Poisons*.

INFLAMMATION OF THE INTESTINES (ENTERITIS).

The *intestines* of dogs are very irritable, and extremely subject to inflammation; and the phlegmasiæ affecting them are of various kinds, according to the operating cause. Distemper is the cause of a variety, that shews itself by a continued diarrhœa. Dogs are very liable to rheumatism; but it is no less

true than curious, that a dog never has acute, and seldom chronic rheumatism either, that is not accompanied, more or less, with inflammation of his bowels: this connexion is, however, confined to the dog alone. In many cases the bowels are the immediate and principal seat of the rheumatism, which is productive of a peculiar enteritis, easily distinguished by those conversant with the diseases of dogs; and further noticed below. Poisons produce a most fatal inflammation in the bowels of dogs; the effects of which are treated on under the head *Poisons.*

Among the various inflammatory affections, four kinds are peculiarly common to the intestines of dogs. The *first* is that which is brought on by rheumatism, as already explained.—See *Rheumatism.*

Inflammed bowels, from costiveness, forms the *second* kind, and is a very common occurrence. Dogs will bear costiveness for many days before inflammation comes on; but, when it has commenced, it is not easily removed. This kind is known by the gradual manner in which it attacks, and by its being at first unaccompanied by any very active symptoms. The dog appears dull, dislikes to move, and hides himself; his belly is hot, and sore also: the constipation is sometimes so complete, that nothing at all comes from him; at others a few drops of fæces are strained out at every effort, which is apt to make the observer suppose that the dog is not costive, but, on the contrary, relaxed; he is, therefore, led to neglect the principal means of relief. In the inflammation arising from costiveness, the sickness of stomach is not at first so distressing; nor is the dog so extremely anxious for water, as he is when it arises from cold alternating with heat, and its attack is more acute. The obstruction that exists is commonly situated far back in the larger bowels, so that, by introducing the finger into the fundament, a quantity of hardened excrement may frequently be felt. This occurs so often, that, whenever costiveness is even suspected, the dog should be examined, by passing the fore finger up the anus.

Obstructions may, however, exist in any portion of the in-

testinal track. I have in my possession a portion of jejunum; in the centre of which intestine is a cork, that had been brutally forced down the throat. Needles and pins form fatal obstructions sometimes, by getting across the bowels. I have also known a splinter of a chicken bone imbed itself in the substance of one of the intestines, and form an insurmountable stoppage. Intussusception also now and then occurs, in which one portion of bowel gets folded within another from spasm, and thus forms a complete interruption to the passage of the fæces.

Whenever we can ascertain, by the anus, that the obstruction consists of a simple accumulation of hardened excrement within the rectum, it is evident that purging medicines by the mouth can do little good, but may do a great deal of harm, by forcing the impacted contents into a more solid mass. The hardened matter should be carefully broken and separated by the finger, or by a forceps, or the handle of a spoon; and it may then be brought away piecemeal. If this cannot be effected, or the fæcal mass be situated completely without the reach, clysters should be constantly kept up the intestines; that is, as soon as one comes away another ought to be thrown up. The dog should also be put into a warm bath frequently, which often proves the most effectual means of removing obstinate costiveness. Medicines by the mouth are not to be neglected, particularly where the obstruction does not exist within the reach of the finger; on the contrary, a large dose of castor oil may be first tried, which, if it fails to open the bowels, should give place to stronger means. From three to six or eight grains of calomel may be mixed with from half a drachm to one or two drachms of aloes, according to the size and strength of the dog. If the stomach should reject the first dose, add a quarter of a grain of opium to the second: or, a dose of Epsom salts, dissolved in broth, may be tried. Fortunately for medicine, we have now a purgative so subtle and minute, that even a drop put on the tongue proves a powerful laxative. The *croton oil*

acts as powerfully on dogs as on the human subject, and therefore in these cases should be tried. Repeat the purge, whatever it may be, every three or four hours, until it operates.

In the *third* inflammation (*enteritis*), or that which comes on spontaneously from irritation, or from the effect of cold, the early symptoms are more acute; great heat, thirst, panting, and restlessness, are apparent even from the first attack. The stomach is incessantly sick, and throws off all its contents, mixed oftentimes with biliary matter, and all food is refused, but water is sometimes sought for with anxiety. The belly is extremely hot, and painful to the touch; the eyes are red, and the mouth and nose are alternately hot and cold. The animal frequently lies on his stomach, expresses great anxiety in his countenance, and the pulse is extremely quick but small. Enteritis may be distinguished from spasmodic colic by the extreme tenderness and heat in the bowels, which are not so apparent in the latter complaint.

Under these circumstances, the dog should be early and freely bled. From three to six or eight ounces may be taken away, according to the size and strength of the patient. A laxative of castor oil, or of Epsom salts, should be administered; but unless the bowels are obstinately bound, and have been so for several days, nothing drastic should be given by the mouth, as it would only heighten the inflammatory symptoms. The animal should be bathed in warm water every three or four hours: when that is found too troublesome, from his size or other circumstances, the belly may be rubbed with hot water, or fomented with hot flannels; but one or the other must by no means be omitted. Clysters of castor oil, with mutton broth, should be frequently thrown up, till evacuation is procured; and, when the case is desperate, the belly may also be rubbed with oil of turpentine between the bathings, or covered with a blister; or a mustard poultice may be applied. No food should be given, and cold water should be removed; but the dog may be drenched with mutton broth. In case the vomiting continues

obstinate, with every dose of castor oil, and with every drench of mutton broth, give from ten to twenty drops of laudanum: if the animal becomes paralytic in his lower extremities, if the sickness proves incessant, and the mouth and ears become cold and pale, mortification is at hand. Enteritis, or red colic, is not always accompanied with costiveness; in some there is very little; and in a few cases the bowels are even lax: but, in the greater number of instances, costiveness to a certain degree is present; for, even when it did not exist previous to the attack, it is pretty sure to be brought on by it: an effectual laxative is, therefore, premised early in the complaint. If the dog is very delicate, this primary laxative may be castor oil; but when that is not at hand, or fails in its operation, I have used mild doses of Epsom salts with advantage; and, in some instances, these have remained on the stomach when castor oil has been rejected. —See *Costiveness.*

Bilious inflammation of the bowels forms the *fourth* kind of intestinal inflammations; originating, as I suspect, in some affection of the liver, which alters its secreting qualities, and makes it, instead of engendering a healthy bile, secrete one of a black noxious kind; which, as soon as it passes into the bowels, irritates and inflames them most highly. This species of enteritis may be distinguished from the other kinds, by the early vomiting of a black or yellow fœtid matter, and likewise by the bilious matters evident in the purgings. Poisonous substances will, however, sometimes produce similar appearances in the stools; caution is therefore requisite in deciding between the two, as the treatment for the one, and that for the other (see *Poisons*), should be somewhat different. In the inflammations arising from mineral poisons, the vomitings are incessant, and usually frothy and streaked with blood; the mouth swells, and emits an offensive odour; and the stools are more bloody and less tinged with dark bile. This inflammation may be distinguished from the bilious by the thirst, which is insatiable under the action of poison.

Bilious inflammation is not a very untractable complaint, when judiciously managed. When the purgings are already considerable, nothing stronger than castor oil, with some opium, should be given; but this should never be neglected: if even the evacuations are frequent, profuse, and bloody, a mild dose, with forty or fifty drops of laudanum, is proper at first. When the evacuations by the bowels are very trifling, a mild mercurial purge should not be neglected, which I have sometimes found of the greatest service; as,

Submuriate of quicksilver *(calomel)*	12 grains
Aloes	3 drachms
Opium	1 grain.

Make into four, six, or eight balls, according to the size of the dog, and give one every four or five hours till relief is obtained. It will be prudent to give clysters of mutton broth, and also to force some down the throat: and when the sickness is very obstinate, adding to it twenty or thirty drops of laudanum. The warm bath, or fomentations, should be likewise made use of, in case the belly feels hot and tense.

When, however, the bilious purging is very great, has existed some time, and in addition to the quantity evacuated, the stools are found to be tinged with blood; here laxatives may be dispensed with, and instead of them, the following should be given:—

Powdered calumba	1 drachm
Powdered chalk	1 drachm
Powdered gum arabic	1 drachm
Powdered opium	1 grain.

Mix, and divide into three, five, or seven balls, according to the size of the dog, and give one every three or four hours: throw up also starch clysters. The distressing sickness that sometimes accompanies these aggravated cases, and the bloody evacuations likewise, render it very difficult to distinguish them from those that occur from the administration of mineral poisons, without a minute attention to circumstances already detailed. The sickness is, however, best relieved in all of them by the powder of

calumba, with laudanum, given in moderate but frequent doses, as from ten to fifteen grains of the powder, and from fifteen to twenty-five drops of the opiate.

INFLAMED LIVER (HEPATITIS).

The hepatic organ in dogs is subject to two inflammations; one rapid and acute, the other slow and chronic.

Acute inflammation of the liver is not a very frequent disease, but I have several times met with it. It may be brought on by cold, and shews itself by dulness, restlessness, panting, and unusual inclination to drink. There is also present, in some cases, frequent sickness; but it is seldom of that distressing kind which accompanies inflammation of the stomach or bowels. Hepatitis may be distinguished from peripneumony, or inflamed lungs, by the absence of an intense coldness of the nose and mouth; neither is there a watery exudation from them, as in pneumonia; nor is the head held up to facilitate breathing. From inflamed bowels it may be distinguished, by the general symptoms being, although not very unlike, yet less severe, with less prostration of strength; neither is the region of the belly so hot and tense, although I have observed the right side considerably enlarged and tender to the touch in some cases. On the second day of the inflammation, the urine becomes of a deep yellow: the skin appears likewise universally tinged, but the coverings of the eyes and mouth particularly so.

This disease is sometimes attended with purging, but much oftener with constipation. When active purging is present, the complaint usually degenerates into the bilious, or *fourth kind* of inflammation of the bowels.—See *Inflamed Bowels.* In most instances it proves fatal, unless attended to sufficiently early; and such a termination is at hand when the sickness becomes frequent, when the limbs appear paralytic, and the mouth is pale as well as cold.

The proper *treatment* of hepatitis consists in early and

plentiful bleeding; a stimulating or blistering application applied to the belly, particularly towards the right side, with opening medicines; and, if circumstances should prevent the application of any stimulant to the region of the liver, the dog should be put into warm water twice or thrice during the day. After the bowels have been well opened, give the following, every three or four hours:—

Powdered foxglove	8 grains
Antimonial powder	16 grains
Nitrated potash *(nitre)* in powder	1 drachm.

Mix, and divide into seven, nine, or twelve powders; or make into as many balls, according to the size of the dog. If, under this treatment, amendment does not become apparent, repeat the bleeding, and stimulate the skin more actively.

Chronic inflammation of the liver arises sometimes spontaneously, and is idiopathic. In other cases it is brought on by the agency of other affections. Long continued or inveterate mange will tend to produce disease in the liver. In some cases of distemper, also, a dull inflammatory action of the liver occurs, and which is almost always accompanied with a pustular eruption over the belly. The skin is also commonly tinged with a biliary suffusion; but the urine is invariably impregnated with much bile; and both this state, and that more active biliary suffusion, which takes place in some cases of distemper, are known by sportsmen as the *yellows*. The symptoms are dulness, wasting, a staring coat, and very often a tumour may be felt in the right side of the belly. From the unhealthy appearance of the hair, this disease is often mistaken for worms; but it may be distinguished by the want of the voracity of appetite which characterizes worms, and also by the general and constant dulness of manner: sometimes, also, it is connected with chronic splenitis, and also with the asthma.

The *treatment* of this disease should be commenced by a mercurial purge, after which give, night and morning, one of the following balls:—

Submuriate of quicksilver (*calomel*)	20 grains
Antimonial powder	30 grains
Powdered myrrh	2 drachms
Powdered gentian	2 drachms
Aloes	2 drachms.

Mix with any adhesive matter, and divide into fifteen, twenty, or twenty-five balls, according to the size of the dog.

Mercurial ointment	1 ounce
Blistering ointment	2 drachms
Ointment of yellow wax	1 ounce.

Rub into the region of the liver a small portion of this ointment (the size of a nutmeg) once every day. Pursue this treatment some time, carefully watching the mouth, to guard against sudden and violent salivation. A moderate soreness of the mouth is, however, to be encouraged and kept up: nor have I ever succeeded in removing the complaint without it.

INFLAMMATION OF THE SPLEEN (SPLENITIS).

Acute inflammation of the spleen, although there is no reason to doubt its existence, I have never marked; but *chronic inflammation* of this organ I believe by no means uncommon, having myself seen several instances, and I know of one at the present moment in a Newfoundland dog, the property of a friend: at least, from former cases which fell under my observation, I conclude it so, and am pretty certain I am not deceived. This dog had been subject to great confinement, not being loosened from his chain for weeks together. He was received by my friend with an unthrifty looking coat, but gorged with flesh: the mischief, however, was done, and soon began to shew itself; he became emaciated, while the left side of the abdomen remains hard and protruded; he husks, and has irregular loose stools. These, in essential particulars, were the symptoms exhibited by the cases I have hinted at; the *post-mortem* examination of which presented a mass of indurated disorganized matter, very different from the usual vascular spongy structure of the liver. In some

asthmatic cases I have found both the liver and spleen diseased in the same way, particularly the latter; but whether it was a consequence or a cause, I know not.

INFLAMED BLADDER (CYSTITIS).

This is not a very common complaint among dogs, nevertheless it now and then occurs: in the year 1810 there was an epidemic prevalent, in which the bladder was in every instance very much inflamed; and in many of the cases which occurred it was exclusively so. *Cystitis* shews itself by a very frequent pulse, great restlessness, and panting: in some instances the urine is evacuated by frequent drops, tinged with blood; in others there is a total stoppage of it. The belly appears hot, swelled, and is very tender to the touch, particularly between the hind legs.

The animal affected should be liberally bled, and have opening medicines; clysters and the warm bath are also to be resorted to, and frequently repeated. Diuretics are improper, but antimonials, as antimonial powder, or small repeated doses of emetic tartar, are by no means to be neglected. Where the warm bath is not convenient, warm fomentations may be properly substituted. Leeches may also be applied.

Sub-Class V.

Inflammation of Ligamentous and Aponeurotic Expansions.

RHEUMATISM.

There is no disease, except distemper and mange, to which dogs are so liable, as to a rheumatic affection of some part or other of the body. Rheumatism presents almost as many varieties in dogs as it does in man; and it has some peculiarities that are observed in the dog only. A very extraordinary one is, that rheumatism never exists in a dog without its affecting the bowels;

that is, whatever part of the body becomes rheumatic, either an active rheumatic inflammation will be found to exist in the bowels also, or they will be attacked with a painful torpor: and, in either case, costiveness will be commonly present. The most usual form of this complaint is one which is very similar to the human lumbago. In this case a dog is, in general, seized with a partial or total loss of the use of his hind legs; his back, particularly about the loins, appears tender and painful to the touch. He screams on being moved; his belly is hot, and very sensible to pressure, and his bowels the seat of much pain. The nose is hot also, the mouth dry, and the pulse considerably increased in frequency. Sometimes the paralysis is not confined wholly to the hinder legs, but the fore legs are partly, or completely, paralysed, and helpless also. It seldom attacks the smaller joints, but confines itself to the trunk and upper portions of the extremities: neither does it wander, as the human rheumatism, from place to place, but usually remains where it first attacked.

A certain prognostic of the termination of this acute type of the complaint is very difficult to form; for, in some cases, the limbs recover themselves very speedily, in others more slowly; while, not unfrequently, the paralysis remains through life, and, when confined to the hinder extremities, the animal drags them after him as long as he lives, or gets the habit of carrying them completely from the ground by the strength of his fore quarters. When the paralysis is universal, the chance of perfect recovery is less than when it is partial; though, from this also, dogs do now and then recover by active and judicious medical treatment. It is to be remarked, however, that too often, although the general health may be established, yet some weakness will remain in the loins and extremities: but more particularly it may be regarded as a rule, from which there are few deviations, that, when a dog has once had rheumatism, he will be extremely liable to it again on the access of cold.

There is a singular variety of rheumatism that seems to be combined with a spasmodic affection, which peculiarly affects the

neck, occasioning swelling, stiffness, and extreme tenderness of the part. Sometimes also it troubles, at the same time, one or both fore legs; but even here, the attack on these distant parts appears to be more symptomatic than idiopathic, for the bowels are always affected, and it happens invariably, that, when they are relieved, the violence of the complaint is always mitigated in the limbs or neck[18]. I have not found any one kind of dog to be naturally more prone to rheumatic affections than another, all seem alike subject to them; but those become most so that live most artificially, and such as are usually kept warm, but become accidentally exposed to wet or cold. The spring produces more instances of this disease than any other time of the year, probably from the prevalence of easterly winds at that season[19].

The *treatment* of canine rheumatism should be as follows:— In every instance the bowels must be particularly and promptly attended to; and in no way does this indication seem better effected than by first placing the animal in warm water, and keeping him there for a quarter of an hour, at the same time rubbing him well over the affected parts. When taken out, wipe him dry; wrap him well up in a blanket, and place him within the warmth of a fire: first, however, giving him the following:—

Tincture of opium	20 drops
Vitriolic æther	30 drops
Castor oil	1 ounce.

This quantity is proper for a middling sized dog, and may be increased or diminished in strength at pleasure: should it not be found to operate as a laxative, a clyster should be likewise administered; and, in default of that acting also, give the following ball, increasing or diminishing its size and strength according to circumstances:—

[18] See a note on this subject appended to *Spasmodic Colic*, Class II.

[19] Dogs, particularly such as are closely domesticated, become remarkably open to atmospheric impressions. Any sudden change of weather, especially from a dry to a moist state, may be seen in the depressed countenance and listless manner of many of them. Many others cannot be exposed to an easterly wind, for a quarter of an hour even, without becoming affected with rheumatism.

Submuriate of mercury (*calomel*)	4 grains
Powdered opium	a quarter of a grain
Oil of peppermint	1 drop
Aloes	1 drachm.

Make into a ball with lard or butter, which give; and, if necessary, repeat every four hours till the bowels are perfectly open; and keep them gently so by mild aperients for several days after, or until amendment takes place. The affected parts must also be embrocated two or three times a-day with either of the following:—

Oil of turpentine	2 ounces
Liquid carbonate of ammonia (*spirit of hartshorn*)	2 ounces
Tincture of opium (*laudanum*)	2 drachms
Olive oil	2 ounces:

Or,

Cajeput oil	one part
Soap liniment (*opodeldoc*)	two parts. Mix.

The warm bath should be repeated at intervals of one or two days, according to the quickness or slowness of the amendment; moderate feeding only should be allowed. Sometimes food is altogether refused; more frequently the animal is as willing to eat as at other times; and it is not uncommon, in some of these cases, from a morbid sympathy of the stomach and bowels, for him to be more than usually voracious. When the *paralysis* occasioned by rheumatism continues to deprive the limbs of their mobility, I have experienced some good effect from electricity, in others from mercurial frictions, and in some cases from blisters along the spine: where the hinder limbs only have been paralytic, a very large pitch plaister, applied over the whole loins, reaching to the tail, as well as covering the upper parts of the thighs, and worn for two months, or even longer, has been of great service. I have experienced benefit also from the cold bath; but the warm bath, though a most admirable remedy during the rheumatic attack, I have never found to give any relief to the future paralysis. Finally, when all these have altogether failed, I would advise a trial of the tonic plan recommended for Chorea; and as a last resource acupuncturation might be tried, which see among the *Operations*.

CLASS II.

Spasmodic Diseases.

EPILEPSY.

Epileptic fits are of frequent occurrence in dogs, and may, like those in ourselves, be considered both idiopathic and symptomatic; or, in other words, they appear *constitutional* at some times, the result probably of particular organization, and at others are caused by accidental irritations, as worms, metastasis in distemper, &c. Blows on the head have made dogs subject to occasional attacks of epilepsy; and the nervous susceptibility of some is such, that any unusual excitement, whether of joy or fear, will bring it on. Sporting dogs, particularly such as are what is called very high bred, in which the mental irritability is artificially increased, are often the subjects of it when ranging in the pursuit of game, and particularly such as have been previously confined much; from the unprepared state of the brain to bear the unusual quantity of blood determined to it. In some dogs, the mere plethora of the constitution, or the fat accumulated, are sufficient to produce an attack; and such, without other excitement, if made to travel an unaccustomed distance behind a horse or carriage, particularly at a quick pace, fall into a fit, and from doing it unobserved are frequently lost. Fear will often occasion an epileptic attack in young dogs, or in dogs of any age, if previously debilitated by illness. *Worms* are a very common cause of epilepsy in young dogs; and teething in puppies. Distemper also ushers in its attack sometimes by a fit of this kind, in which case it is not an unfavourable symptom; on the contrary, when epileptic fits occur during the progress of the disease, they commonly destroy the patient. The *epilepsy of distemper* may be readily distinguished from the other varieties by the attendant symptoms of that disease being present, as well

as by the full detail of its peculiarities of attack under that head, (p. 116.)

The *treatment of epilepsy* must be preceded by an inquiry into its probable cause. Where close confinement and accumulation of much flesh may be supposed the principal agents, let the dog be bled, purged, moderately fed, and regularly but not violently exercised. Where a natural irritability, as in the high-bred sporting varieties, appears the cause of the excitability, it should be moderated by accustoming them to a more uniform and full supply of the objects occasioning it, with a habit of regular exercise, whether wanted for sporting purposes or not: thus, for a valuable setter belonging to a gentleman, which seldom went to the field without an epileptic attack, I recommended his being taken into a country more plentifully supplied with game than his neighbourhood afforded; the consequence of which was, that though, for a few days after his removal, he had fits more frequently than ever, yet they gradually lessened, and at length wholly left him. Where repletion and want of *condition* appear the principal causes, lower the system by bleeding, purging, and occasional emetics, as detailed under the *General Treatment of Dogs* (p. 66). A seton is also a valuable remedy, and whenever fits have become habitual, insert one, and keep it open some months.

An epileptic fit can often be stopped by cold water thrown over the head and body; and whenever a fit has occurred, the dog should have a brisk purge, as costiveness is not an unfrequent cause; and this is the more prudent, because should it arise from any other source, the treatment is equally proper. Such an occurrence ought also to be followed by an examination of the stools, and by looking for other signs of worms, which are often the occasion of it. See *Worms*, Class III.

The *epilepsy of bitches when suckling* is of a different kind to that I have been treating of, being wholly asthenic, and consequent to the attempt of the mother to furnish a greater number of

young than the constitutional strength of the animal is equal to[20]. It is found principally among fancy and highly-petted dogs, whose irritability of temperament is thus increased by their artificial habits: occasionally, however, it occurs with others less confined and pampered, where the owners are anxious to save several of a litter, or are forgetful to supply the necessary extra nutriment. The appearance of these fits is made at uncertain periods of lactation, as the constitution begins to sympathize extremely, sooner or later, with the unnatural call made on it. The mother may go on well for weeks even; suddenly, however, she will be seized with convulsions, which will follow each other with rapidity, and carry her off: the cause of which is seldom suspected, but it almost always arises from debility thus brought on. The mother should always, therefore, be allowed to suckle as many puppies only as her constitutional powers are equal to; but to specify the precise number is totally impossible, as some can bring up five or six with more ease than others can rear three. Strong healthy bitches, that have before brought up young, may rear four or five: delicate ones are sufficiently burthened with three; many can only bear two.

The *treatment* is to be commenced by an immediate removal of

[20] Without consideration, some might say, how then do dogs in a state of nature survive these hazards? to which may be replied, Let nature alone, and she will provide for her own children; interfere with her, and she leaves the onus with you. In a state of nature, the caninæ breed but once in the year, and never have more, I believe, than five or six at a birth. Cultivation and domestication have so altered their habits (see p. 41), that our dogs breed three times in two years, and some five times in three years, and have six, eight, and occasionally many more whelps at a birth. We have also decreased their powers of supplying these extra wants, by the very same means we have increased their generative powers; by making them artificial instead of natural animals. I have had many occasions of proving, that this artificial cultivation weakens their resources under disease, and under other accidental circumstances, as breeding, &c. Nature thus punishes the deviations from her established rules; and as this frequent gestation and unusual rearing of extra numerous progeny is of man's own work, he must oppose art to art, by destroying as many of the young as may be supposed beyond the powers of the mother to rear; and also by giving her extra support, to nourish the remainder.

the puppies: one or two may be put to her for half an hour, morning and evening; or, if she is distressed at their loss, and has much milk left, one may remain with her; but, unless the majority are taken away, she cannot be saved. As an internal remedy, employ the following:—

Sulphuric æther	1 drachm
Tincture of opium (*laudanum*)	1 drachm
Strong ale	2 ounces.—Mix.

Give from a dessert to two table-spoonfuls of this mixture, according to the size and strength of the patient, repeating the dose every two or three hours. Force down also some nutritious matter, solid or liquid, as diet; and, as soon as the animal will eat, let the food be of the very best kind, and in sufficient quantities. But let the warm bath be resorted to before all.

The *true idiopathic epilepsy*, or that which becomes habitual without a known or accidental cause (or even that which is occasioned from accidental causes), should it resist the preventive means already directed, must be combated by antispasmodics and tonics: commence the treatment, however, by the following, where the dog is strong, and in full condition: if otherwise, proceed with the next recipe:—

Calomel (*submuriate of quicksilver*)	8 grains
Carbonate of iron.	half a drachm
Extract of hemlock (*cicuta*)	1 scruple.

Mix with conserve of roses, palm oil, &c. &c.; sufficient to form twelve, nine, or six balls, of which give one every morning. Should these not mitigate the attacks, try the following:—

Nitrate of silver (*lunar caustic*), finely powdered	2 grains
Spiders' web, called cobweb	5 grains
Conserve of roses sufficient for balls.	

Make into nine, twelve, or fifteen balls, according to the size of the dog; of which give one every morning.

CHOREA, SPASM, CONVULSION, AND PARALYSIS.

Chorea, known in the human subject as St. Vitus's dance, is a peculiar modification, or compound of spasm and paralysis. We

have sufficient reasons for considering the whole of these as arising from certain morbid affections or states of the brain; though post-mortem examinations have often failed to detect any structural alteration there; and when such do occur, some might be led to attribute them to the force of the symptoms; or, in other words, as an effect rather than a cause. Chorea is sometimes general, as is seen in some states of distemper, when the animal is universally affected with muscular spasmodic contractions from head to foot, as well sleeping as waking: every limb is alternately flexed and straightened, as though the poor brute was in constant and fatiguing exercise; while his cries and moans bespeak his sufferings, and he dies, worn out by the irritation and exhaustion produced, earlier or later, as his own strength or the degree of the disease operate for or against him.

Chorea is, however, more frequently partial, and these convulsive twitchings are confined sometimes to the head and neck, which are bowed continually; occasionally only a part of the face is so convulsed; in others the fore quarters are principally affected, being drawn down with distressing regularity. Now and then it is in the hinder quarters, and sometimes in one limb only; but wherever it exists it seldom affords any respite. In this state a dog will continue, particularly when it is the consequence of distemper, for a longer or shorter period; and oftentimes it remains through life, rendering the objects of it useless as sporting dogs, guards, &c. Chorea may be the consequence of other irritations beside distemper, as worms, injuries received on the head, and debilitating diseases; but the distemper is the most frequent cause.

The *treatment* is usually of the tonic kind, although in the more early stages it may not be imprudent to act on a supposition that some revulsive means, directed to the sensorium, might be useful. In such case, a seton might be applied, or a blister to the back of the head; or the spine might be stimulated; but it is rare, when the disease has continued some time, that these means are attended with benefit. We may expect more from tonic remedies,

as liberal feeding, pure air, the cold bath, frictions, with the following:—

Nitrate of silver, ground very fine.....	3 grains
Carbonate of iron, powdered.....	2 drachms
Gentian..... .....ditto.....	3 drachms
Conserve of roses sufficient to make twelve, nine, or six balls,	

of which, give one every night; and if the medicine is well borne on the stomach, give it both night and morning, It is the practice at the Royal Veterinary School of Lyons, to treat dogs in this complaint with the gum assafœtida, dissolved in vinegar, both by the mouth and by clysters; and the accounts are very favourable with regard to it, if it is sufficiently long continued, but most so in those cases where there is neither paralysis nor marasmus. Other tonic formulæ may also be used, in which the sulphate of iron, sulphate of zinc, quinine, very minute doses of the strychnine, as one-eighth of a grain, may any of them enter. It is not, however, improbable that the disease will baffle every attempt at cure.

Spasm differs from chorea, principally in its being an *irregular motion* rather of the internal than the external muscular fibre; when very violent and diffused, it degenerates into what is popularly understood by *convulsion*, in which way it is that partial spasm, particularly chorea, ends: thus the twitchings which affect the limbs in distemper, when, instead of lessening they increase daily, usually end by one universal convulsive attack, which destroys the animal. Dogs are very subject to spasm from a variety of occasional causes; it is also the usual accompaniment of several idiopathic diseases. Rheumatism produces spasmodic affections of the bowels, and often likewise of the neck, fore extremities, &c. In rabies, spasmodic contractions are very common. Spasmodic colic is not unfrequent in dogs; it also affects the bowels of puppies in a very particular manner sometimes.—See *Colic*.

Cramp, which is the familiar term among sportsmen for spasm, occasionally seizes the limbs suddenly, attacking first one and

then the other. Tetanus, or locked jaw, is also a spasmodic affection.

The best external anti-spasmodics are the warm bath, with close confinement in flannel afterwards. In some cases, an extraordinary degree of warmth, in whatever way applied, has proved useful, with volatile embrocations applied to the pained parts. *Internally* the following may be given:—

Æther	20 to 60 drops
Tincture of opium *(laudanum)*	20 to 60 drops
Camphor	3 to 6 grains.

Mix these together, and give in a table-spoonful of ale or of wine and water, according to the urgency of the symptoms. No fear need be apprehended from an over-dose of opium; for in these cases analogy between the human and brute should not be allowed to guide the exhibition; a dog will bear five times the quantity of opium that a human person could. When spasm affects the bowels, sometimes much benefit arises from clysters with a drachm of laudanum in each. See *Colic, Spasmodic.*— Warm bathing, as before noticed, should never be omitted as a remedy in general spasm; but, in some cases of long-continued spasmodic affection, more purely paralytic, as in the twitchings arising from distemper, tonic remedies, with cold bathing, are more proper. Extensive bleeding has very often relieved some occasional spasms; and other cases of longer standing have been benefitted by the treatment detailed under the head *Epilepsy.*

Paralysis is probably the consequence of a diminution of sensorial excitement, by which a total or partial loss of motive power is experienced in certain parts of the body: in extreme cases it may be *general;* it is usually, however, *local.* Rabies is a very common cause of paralysis of the jaws and muscles of the throat, loins, and hinder extremities: sometimes an universal paralytic weakness is also diffused over the frame in rabid dogs. Distemper very commonly is attended with some paralysis of the hinder

parts, sometimes of the head and fore legs, and now and then it is mildly but universally diffused. A frequent source of paralysis is rheumatism, which see (p. 140).

The *treatment* must vary according to the cause producing the affection. General warmth, with stimulating applications to the immediate parts, is proper for most early cases: when long continued, the cold bath proves often most efficacious; but still, during the intervening time, the body should be kept warm. As a general remedy in rheumatic paralysis, an extensive pitch plaister deserves an immediate trial. Blisters and electricity are sometimes useful. For local injuries, a seton opposite the injured part often proves beneficial. Electricity is worthy of attention. Acupuncturation, both in chorea and in paralysis, is deserving of trial. The process is detailed with *Operations*, Class XII.

TETANUS, OR LOCKED JAW.

It is remarkable, that although dogs are very subject to various spasmodic affections, yet to that called tetanus, or locked-jaw, they are so little so, that I never met with more than three cases of it among many thousands of diseased dogs. These are, however, sufficient to establish the susceptibility of the dog to the complaint. Two of these cases were *idiopathic*, one being apparently occasioned by exposure to cold air all night: in the other, the cause was obscure. The third was of that kind called *symptomatic*, and arose from external injury done to one of the feet. In each of these cases the convulsive spasm was extreme, and the rigidity universal but not intense. In one case the jaw was only partially locked. Both warm and cold bathings were tried; large doses of opium and camphor were given by the mouth, and thrown up in clysters also. The spine of one was blistered. Stimulating frictions were applied to all, but in neither case with any salutary effect.

SPASMODIC COLIC.

Among the spasmodic affections of dogs, those attacking the bowels are particularly deserving of notice, from their singularity, importance, and variety. In all violent colics there is probably some spasmodic constriction; and thus the colic of worms; that resulting from acrid poisons, particularly of lead; or from constipation; or from bilious inflammation, invariably present appearances of some spasmodic action on the canal. There is also the *spasmodic colic of rheumatism* (p. 140), which is of so peculiar a nature as hardly to allow us to conclude whether it be a cause or an effect, by the circumstance that no relief from the rheumatic or spasmodic symptoms, which affect the head, neck, or limbs, can be obtained, until the bowels are relieved of their contents.

The true spasmodic colic in dogs is violent in its symptoms, obstinate in character, and very often fatal in termination. I was apt formerly to attribute these cases to the presence of worms, and I am still inclined to think that these animals, particularly the tape worm, will now and then occasion similar symptoms; but the generality of cases may be considered as arising from an irritation *sui generis*. Certain appearances also might beget a suspicion, that the head, in these instances, was the sole seat of the complaint: but however the head may be connected with the disease, the nervous affection is *spent on the intestinal tissues;* and the bowels are the *ostensible* seat of the morbid attack[1], which is of a peculiar spasmodic nature, and commonly attended with a slight degree of inflammation.

[1] If reference is made to the article Distemper, and if the physiological hints there thrown out on the connexions between the brain, as the seat of sensorial and motive power, be looked over, it will be an introduction to what is to follow: which I would premise by observing, that although in a work at first intended as a popular vade mecum on a new branch of the *ars medendi*, I was somewhat obliged to fix the description of a disease where we could best identify it by its consequences, yet it does not follow, that as we proceed we may not be allowed to enlarge our sphere of reasoning, and direct our inquiries rather beyond the plain matter of fact. Under this view, with our

The *symptoms* are dulness, loss of appetite; the nose is hot, but the forehead particularly so; with some panting, and much restlessness. In some cases, there are appearances of acute occasional pain; in others, there is seen but little; but in all there is a particular stupor, and a very remarkable inclination to run round in a circle, and that always in the same direction. The sight seems affected, and sometimes the senses are wholly lost, at others, although the stupor is considerable, yet the faculties are not totally obscured. In some cases, paralysis comes on, and the head becomes drawn to one side; and I have always observed it to incline to the same side that, while capable of moving, the dog turned upon. The limbs also participate in these extreme cases, and become contracted likewise. It is necessary to observe, that lead received into the stomach will also produce all these symptoms occasionally.

The duration of the complaint is various. It sometimes destroys in a few days, while some cases linger two or even three weeks; but eventually five out of every six attacked with it, die. On dissection, slight marks only of inflammation usually appear; and now and then intussusception is present; but in all, portions of the bowels in a contracted state are met with,

extended knowledge of the phenomena of nervous distribution, and the intimate connexion of all diseases of increased action (and spasm may be but a morbid modification of such action) with the brain, as so admirably entered into by Dr. Clutterbuck, are we warranted in indulging in a suspicion that this particular variety of colic, and that also described with rheumatism, as *a rheumatic spasm of the neck and bowels*, may be rather symptoms of idiopathic affection of the brain than of the parts we detect the consequences in? In the affection under our immediate consideration, the symptoms give strong indication of a direct attack on the sensorium itself; but in pursuing the disease, either as to the consequence of a fortunate termination, which seems always the result of applications to the intestinal track, and also the absence of morbid phenomena of any extent in post-mortem examinations of the brain, the probabilities seem to incline to the idiopathic seat being within the bowels themselves; always bearing in mind, that the first reason is the most cogent of the two: for the absence of cerebral marks of disease is no proof of morbid action not having gone on. The matter is worthy of all the observation, and all the consideration of the veterinarian.

while other portions again seem larger than usual, and are flabby and unnaturally relaxed, as though they had lost all their tone by the disease. The most attentive dissection of the head, in these cases, has never detected any morbid appearances there, except, in one or two instances, a slight increase of vascularity. The affection of it, therefore, during the progress of the complaint, must be considered as purely symptomatic, and as not at all referrible to any specific affection of the sensorium itself; and, although the head feels hot during the disease, the eyes are flushed, and great pain appears in it, from the pressure that is always made by the animal against the hand, when it is held to it; and the sense of pleasure that is manifested when the forehead is rubbed; yet direct medical applications to the head, as fomentations, blisters, and leeches, have always failed to give any relief; while the only remedies that have succeeded have been such as were applied immediately to the bowels.

The *treatment* I have found most successful consisted in early and active evacuations, as

Castor oil	half an ounce
Oil of peppermint	1 drop
Tincture of opium	20 drops.

If this should fail to relieve the bowels in half an hour, repeat it; and in an hour or two from this second exhibition, if no stool has been procured, and real costiveness had been previously present, give aloes half a drachm to a drachm, or a drachm and a half, according to the size of the dog. Aperient clysters must also be thrown up, and often repeated, until the bowels are sufficiently evacuated. During the course of that part of the treatment directed to opening of the bowels, the spasmodic constrictions can be attended to at the same time also, by bathing in water sufficiently warm. Frictions with some spirituous mixture to the belly, as gin, or olive oil two parts and oil of turpentine one part. When the bowels are emptied, then give the following:—

Æther	half a drachm to a drachm
Tincture of opium	ditto
Camphor	3 to 6 grains
Castor oil	3 to 5 drachms.

I add castor oil to the antispasmodic mixture, from a confidence in its being a valuable agent in quieting the irritation, as well as in overcoming the obstruction; but if diarrhœa have already come on, then it should be omitted. Anodyne clysters must also be thrown up after the bowels have been opened; the warm bath, likewise, and stimulating frictions should be continued, at short intervals, until the case is hopeless or mitigated.

The occasional and epidemic spasmodic colic of puppies, though essentially the same with that we have described, deserves a separate notice, because it sometimes rages in an epidemial form; and also because it appears more directly an intestinal attack; the head not being affected either with vertigo or stupor: its spasms take place at intervals, occasioning loud cries while they last. The treatment, however active and judicious, is seldom successful; but that which has seemed the most efficacious has been mercurial purgatives; as calomel one grain, aloes a scruple, opium a quarter of a grain: make into a ball, and give every two hours, until the bowels are open. A young dog of some strength and size should have a double dose; a Newfoundland, a treble one. Warm bath, stimulating frictions, and clysters, are equally proper here as in the preceding.

CLASS III.

Diseases of the Alimentary Canal.

Gastritis.—See Class I, Sub-Class IV.
Enteritis.—See Ditto, Ditto.

DIARRHŒA, OR PROFUSE PURGING.

Dogs are subject, under various morbid affections, to looseness of bowels: it is one of the most common and obstinate

symptoms in distemper; and in that complaint the evacuations are of a very variable quantity, colour, and consistence; sometimes glairy, at others thin and watery; often frothy, pale, and in small quantity; now lead-coloured, and then bloody. In bilious purging they are yellow or black; and when worms exist, they change frequently, but usually have some glair, and are often frothy also. When diarrhœa continues for many days, the rectum becomes inflamed and slightly ulcerated within the fundament, by which a constant irritation and tenesmus are kept up; and the poor animal, feeling as though he wanted to evacuate, is continually trying to bring something away. On observing this, persons are frequently led into error; for, under a supposition that there exists actual costiveness at the time, they give purging medicines, which greatly aggravate the complaint, and frequently destroy the dog. When the diarrhœa is considerable, there is always violent thirst, and cold water is sought after with great eagerness; but which increases the evil, and, therefore, should be removed, and broth or rice-water should be substituted in its room. When diarrhœa has continued many days, particularly in the malignant distemper, it often takes on something of a dysenteric appearance, from the mucous surface of the intestines becoming inflamed, and throwing off their mucous secretion in great quantities with every motion.

The *cure of diarrhœa* must depend on the light in which we are led to consider it; whether as a disease of itself, or as merely the symptom of some other existing disease. For instance, *a bilious purging*, which comes on suddenly with violent vomiting, is best removed by evacuants to carry off the vitiated bile from the bowels. In the looseness occasioned by worms also, purgatives or other vermifuges should be made use of to remove the cause, and not astringents, which would merely apply to the effect. But when diarrhœa appears an idiopathic affection, that is, as a diseased action of the bowels themselves, and also when it is produced by distemper, it should in either case be immediately checked, or it may produce such weakness and emacia-

tion as will destroy the dog. In the distemper it is particularly necessary to check the looseness very early; for when it is continued beyond the third or fourth day, its invariable effect is to destroy the appetite, after which, of course, the weakness increases in a double degree.

The *remedies* employed, when diarrhœa is a primary complaint, are generally either of an absorbent or an astringent nature: but a long experience enables me to state, that the loosenesses or scourings of dogs are best combated by a proper mixture of both these. In the purging which accompanies distemper, however, the disease frequently proves very obstinate, and even baffles every endeavour to remove it. Suet, boiled in milk, has been long a favourite domestic remedy, and in slight cases is equal to the cure. Alum-whey has also proved useful, but more frequently as an injection, than by the mouth. Great benefit has also been experienced from an infusion of the inner rind of the barberry, particularly when the evacuations have been glairy and mucus-like. In cases where there has been an appearance of much bile in the stools, and the dog has been strong, I have found it prudent sometimes to premise an emetic of ipecacuanha, after which either of the following recipes may be used with advantage. In point of efficacy they are to be ranked, according to my experience, in the order in which they stand.

No. 1.

Powdered opium	5 grains
Powdered catechu	2 drachms
Powdered gum arabic	2 drachms
Prepared chalk	2 drachms
Powdered ginger	half a drachm.

Make into twelve, nine, or six balls, with conserve of roses, and give one, twice, thrice, or even four times a-day, according to the urgency of the symptoms, &c. &c.

No. 2.

Powdered myrrh	1 drachm
Powdered ipecacuanha	1 scruple
Powdered opium	3 grains
Prepared chalk	2 drachms
Carbonate of iron	1 drachm.

Mix, prepare, and give, as above.

No. 3.	Magnesia	1 drachm
	Powdered alum	2 scruples
	Powdered calumba	1 drachm
	Powdered gum arabic	2 drachms.

Mix with six ounces of boiled starch, and give a dessert or a table-spoonful every four, six, or eight hours. In very obstinate cases try the following:—

No. 4.	Powdered resin	3 drachms
	Powdered opium	6 grains
	Powdered chalk	2 drachms
	Powdered alum	1 drachm.
	Conserve of roses sufficient for balls:	

Form into four, six, or eight balls, according to the size of the dog, of which give one every two or three hours.

It is necessary to be aware that the action of astringents is varied and uncertain. In one case one remedy only will prove successful, and in another a very different one will alone do good: But in the looseness that accompanies distemper, it may be observed as a general rule, that absorbent astringents succeed best. In some very desperate cases of diarrhœa, when all other means have failed, I have derived great benefit from astringent clysters; and this so frequently, that I would, in all such instances, strongly recommend their adoption. From the benefit that is frequently experienced from their use; and from the tenesmus, and appearance of the stools, in which a drop or two of blood is squeezed out at the last expulsive effort, we might judge that the rectum, or sometimes the colon, is, in many cases, the principal seat of the complaint, and post-mortem examinations shew this to be actually the case.

Astringent clysters may be composed of alum whey, which is nothing more than milk curdled with alum. Suet, boiled in milk, is also an excellent clyster for the purpose. Boiled starch is likewise a valuable astringent clyster, and, perhaps, is the very best that can be used, if the powder No. 1 be added to it. In diarrhœa, it is of the greatest consequence that the strength should be supported by liberal but judicious feeding; and it must

not be forgotten that, when the appetite ceases, starch, with gravy, should be forced down in small quantities, but often. The animals affected with this complaint should be kept very quiet and warm, both which parts of the treatment must be carefully attended to. In some instances I have witnessed the good effects of a daily warm bath. I have also observed, where the diarrhœa of distemper has existed in a dog who had been before closely confined, that removing him into a more free and pure atmosphere has tended greatly to check the disease.

COSTIVENESS.

Dogs, as carnivorous animals, have naturally a dry constipated habit, that is greatly increased, in many cases, by the bones they receive as food, which, when given in great quantities, aggravate the natural torpor of their bowels, particularly where they cannot relieve themselves by a natural evacuant in the dog-grass.

Costiveness is productive of numerous evils; it increases the disposition to mange and other diseased secretions. It also produces indigestion, encourages worms, makes the breath fœtid, and blackens the teeth: but it is principally to be avoided from the danger, that the contents of the bowels may accumulate and bring on inflammation.—See *Inflamed Bowels.* Whenever a dog has been costive three days, and one or two moderate aperients have failed of opening the bowels, it is not prudent to push the means of relief farther by more violent purgatives; for this would be apt to hurry the contents of the intestinal canal into one mass, whose resistanee being too great for the bowels to overcome, inflammation follows. Mild aperients may be continued, but clysters are principally to be depended upon.—See *Clysters.* In such cases, the introduction of the clyster pipe will often detect a hardened mass of excrement. If the action of the pipe, or the operation of the liquid, should not break this down; it is absolutely necessary to introduce the finger, or, in a very small dog,

a lesser apparatus, and mechanically to divide the mass and bring it away. The recurrence of costiveness is best prevented by vegetable food and exercise: but when vegetable food disagrees, or is obstinately refused, boiled liver often proves a good means of counteracting the complaint.—See *Feeding*.

Colic, Inflammatory.—See Class I, Sub-Class IV.

Colic, Spasmodic.—See Class II.

INTESTINAL WORMS.

Of those worms which appear indigenous to the intestines of the dog, the *tænia*, or tape worm, from its flat figure, is the most prejudicial, and the most difficult to remove. I have known four or five hundred joints (each a distinct animal) passed by a dog, whose united length would encircle his body many times. Sometimes they become coiled up into a ball, which thus forms an impenetrable obstruction within the intestines, and destroys the dog.

The *teres*, or long cylindrical worms, resembling earthworms in figure, but of a whitish colour, are the most common to dogs; and, when existing in great numbers, particularly in puppies and young ones, sometimes prove fatal by the convulsions they occasion. In distemper they greatly aggravate the symptoms; so much so, that to destroy them, frequently cures the dog. The natural situation of these worms is within the intestines, but they sometimes crawl from them into the stomach, and are then brought up by the sickness they occasion.

The *ascarides*, or small thread-worms, likewise occasionally infest dogs, residing principally within the rectum. They produce an intolerable itching in the parts behind, to relieve which, those troubled with them are seen continually drawing the funda-

ment along the ground. Except by the irritation occasioned, which may weaken when it is excessive, they do not appear to do much internal injury. The constitution of some dogs appears particularly favourable to the generation of worms; for, destroy them as often as you will, they soon return again. Puppies, during every stage of their growth, are very liable to them: in many, the increase of the body appears checked by their ravages.

The *presence of worms*, when they exist in considerable numbers, is easily detected; for such a dog has usually a slight cough, his coat stares, he eats voraciously, yet seldom fattens: his evacuations prove also a most unequivocal symptom; for they are, in such cases, peculiarly irregular, being at one time loose and slimy, and at another more hard and dry than natural. The belly likewise is often tense and enlarged. When very young dogs have worms, the first that pass are seldom noticed, for they seem to affect the health but little; but gradually, as they increase, purging becomes more frequent; and the animal, though lively, becomes emaciated; his appetite is often irregular, his nose hot and dry, and his breath fœtid. The growth likewise appears stationary, and in this way it is very common for him to continue, till a fit or two carries him off, or he dies tabid. In adult dogs, worms are less fatal, though, from the obstructions they form, they sometimes kill them likewise; and they always occasion a rough unhealthy coat, with a hot nose and fœtid breath; and in both the young and the full grown, they occasionally produce epileptic fits. It does not follow, because no worms are seen to pass away, that one who exhibits the other symptoms of them has none; neither, when they are not seen, does it follow even that none pass; for, if they remain long in the intestines after they are dead, they become digested like other animal matter.

The *treatment* of worm cases in dogs has been like that of the human, and the remedies employed have been intended either to destroy the worms within the body, or otherwise to

drive them mechanically, as it were, out of the bowels by active purgatives: but, as these latter means were violent (for, without the very mucus of the bowels, as well as the fæces, were expelled, no benefit was derived from them), so the remedy, in many instances, became worse than the disease. Many substances have, therefore, been tried, in hopes of destroying these animals within the body; and it is evident, that any thing that could certainly do this would be most important, as it would obviate the necessity of having recourse to the violent purgative means heretofore employed.

For this purpose, substances which present small spiculi, or points, have been found the best adapted for the destruction of worms, by abrading their external or internal surfaces, and that without, in the slightest degree, injuring the patient. Among huntsmen and gamekeepers, glass, very finely powdered, is a very favourite remedy. An old man of this description, in Buckinghamshire, was famed for worm killing in dogs, and his only means used was glass finely powdered, and given as a ball. Mr. Youatt also recommends the same. If this should be objected to, from what I believe to be a groundless fear, that it is dangerous, try the following:—

Cowhage *(dolichos pruriens,* LINN.)..... half a drachm
Tin filings or iron, made with a very fine file.... 4 drachms.

Form into four, six, or eight balls, and give one every morning; after which, a mercurial purgative will be proper. I have occasionally succeeded, in very obstinate worm cases, by moderate daily doses of Epsom salts. Ascarides are best destroyed by soap or aloetic clysters. The tape-worm is not unfrequently removed by mercurial purges; but a still more certain remedy for this noxious guest is such doses of oil of turpentine as a dog could take safely, remembering that dogs bear very little of it: to some, however, it proves much less hurtful than to others. A small dog might be tried with half a drachm given night and morning, mixed with the yolk of an egg, for a few days: a

larger two scruples, and the largest a drachm, beginning always with a very small dose, and increasing it, if it produce no disturbance.

PILES.

Dogs are very subject to piles, but the symptoms by which the complaint shews itself are by no means known as such, although they are not very dissimilar to the human hæmorrhoids. The complaint is brought on by confinement, heat, and heating food; and shews itself by a sore red protruded anus, which the dog aggravates by dragging it on the floor: it is likewise frequently the effect of costiveness. The tenesmus occasioned by diarrhœa may readily be mistaken for piles, from the anus appearing red and sore: and it is evident that in such a case, to effect a cure the looseness must be restrained, and the sore anus may be anointed with the ointment directed below, omitting the tar. The habitual piles will be greatly relieved by the use of the following ointment:—

Sugar of lead	6 grains
Tar	half a drachm
Elder ointment, or fine lard	3 drachms.

Mix, and anoint the fundament with it two or three times a-day. To correct the habit towards the disease, feed moderately on cooling food, exercise sufficiently, and, as long as the disposition to it is considerable, give daily one of the following powders:—

Nitrated potash *(nitre)*, powdered	half a drachm
Milk of sulphur	3 drachms.

Divide into nine, twelve, or fifteen doses.

FISTULÆ IN THE ANUS.

This is not a very uncommon complaint in dogs, and is derived from constitutional aptitude, as a carnivorous animal, to the formation of fæces so hard, and so difficult of evacuation, as often to abrade the rectum, and produce inflammation and ulcera-

tion: this sometimes has ended in leaving a fistulous opening in the cellular substance which surrounds it, and which usually makes its way outwards. A mere *external fistula,* or external opening by the side of the anus, not communicating with the rectum, may, in general, be cured by any mild stimulant daily inserted to the bottom: but an *internal one,* by which is meant a fistulous communication between the rectum and the external opening, which buries itself into the cellular tissues around it, will usually require an *operation* for its cure. A probe-pointed bistoury must be passed up the fistulous orifice, while a finger of the unemployed hand is introduced within the rectum, which will guide the section to be made. By this means the fistulous cavity formed in the cellular substance, and that existing in the rectum, are to be laid into one, by dividing it down, from its utmost extent to the verge of the anus. When a true fistulous opening exists, but not communicating with the intestine (which is very seldom the case in the dog), the point of the bistoury, when it has been passed up to the limits of the external wound, must be forced through the intestine, and then carried downward. It must, however, be remarked, that when this latter fistula is the consequence of external violence, it should not be so treated until fully tried by stimulants; to which, as before observed, it will commonly yield without an operation. The section being made, introduce lint dipped in the compound tincture of benjamin between the edges of the wound, and into the sinuous hollow; keeping the body during the cure gently open.

CLASS IV.

Morbid Collections of Fluid.

DROPSY (HYDROPS)

Is by no means uncommon in canine pathology. Dogs are most subject to ascites, or dropsy of the belly. In the next

degree of frequency they have hydrothorax, or dropsy of the chest; less frequently they have encysted dropsy; and, least of all, are they subject to anasarca, or dropsy of the skin, unless when accompanied by ascites. The former is usually the consequence of some other chronic affection, as asthma, tabies, &c.: neglected mange has also produced it, but more frequently it is followed by ascites. Acute hydrothorax commonly succeeds to active inflammation of the lungs; in which cases, about the third day from the pneumonic attack, the water begins to be formed within the cavity of the chest, and increases so as to suffocate the animal in a few hours.—See *Inflamed Lungs.*

Dropsy of the chest may be known to exist by the extreme uneasiness the dog shews when he lies down, and by his attempts, under such circumstances, to elevate his head. The chest will also appear full and swollen, and the water within may be generally heard on motion. The beating of the heart will likewise afford a decided characteristic of the complaint; for the hand, placed on one side of the chest, will be affected with a kind of thrill, very different from the usual sensation presented by the beating of the heart of a healthy dog.

The *cure* may be attempted by the means recommended for ventral dropsy; but I have hitherto found the disease fatal in every acute case, without exception. In both the chronic and acute it may not be amiss to try the effects of paracentesis, or the operation of letting out the dropsical accumulation, which will afford the only chance: in the chronic hydrothorax I have prolonged life, even some weeks, by this means; but as the cause which had operated in producing it had injured the constitution beyond repair, so I never established a perfect cure.

The operation of paracentesis thoracis, or puncturing the chest, though not quite so simple as letting off water from the belly, yet is neither a complex nor a dangerous one, if only a moderate portion of caution be used. Make an opening through the integuments, by means of a lancet, near the anterior edge of the eighth or ninth rib, about the termination of the bony portion

of the rib into its cartilaginous addition, which will be readily detected by the touch. Previous to making the opening, draw the skin a little to one side, to ensure a ready closing of the cavity against the entrance of the external air. Carefully introduce a small trochar, rather upward and backward, so far only as just to penetrate the pleura, which will be known by a gush of fluid: now withdraw the trochar, and push the canula a little forward, to evacuate the fluid effectually. If both cavities are found dropsical, open the other side also; which done, close the opening or openings with adhesive plaister, and bandage over it.

DROPSY OF THE BELLY (ASCITES).

This is not an uncommon disease with dogs; and a prodigious quantity of water is sometimes accumulated within the abdomen. The causes of the disease are various. Among the most common are long-continued asthma; a diseased state of either the liver or spleen; tabies mesentericus; and old, virulent, and wholly neglected skin affections, particularly mange. The serous accumulation is sometimes slow, at others very rapid; and the symptoms that precede the attack are, of course, as various as the causes that produce it. In some cases the forerunner is a harsh cough; in other instances nothing is observed but a ravenous appetite[2]; and the dog, although he may eat an additional quantity, yet he will waste in flesh. Gradually, however, his belly begins to swell, and grows round, hard, and shining. The breathing becomes quick and laborious, and he lies down with difficulty; he drinks much: and, though in the early stages he may eat heartily, yet, as the disease advances, his appetite fails, and, sooner or later, he becomes suffocated from the impediment to the free action of the lungs.

Dropsy of the belly may be distinguished from *fat*, by the particular tumour that the belly forms, which, in dropsy, hangs pen-

[2] In these cases it is more than probable that the mesenteric glands have taken on disease: when dropsy is the consequence of diseased liver, the appetite is not usually so ravenous.

dulous, while, at the same time, the back bone sticks up, and the hips appear prominent through the skin: the hair stares also, and the feel of the coat is peculiarly harsh. It may be distinguished from *pregnancy* by the teats, which always enlarge as gestation advances; neither has the impregnated belly, however full, that tight tense feel, nor the shining appearance, observed in dropsy: there may be also fœtal inequalities distinguished in it; and, when pregnancy is at all advanced, the young may be felt to move. The most unequivocal mode, however, of detecting the presence of water is by the touch. If the right hand be laid on one side of the belly, and the other side is gently struck with the left, an undulating motion will be perceived, exactly similar to what would be felt by placing one hand on a bladder of water, and striking it with the other.

Treatment of ascites, or dropsy of the belly. — The medical treatment, in these cases, is seldom attended with success, because the complaint itself is seldom primary, but the consequence of some other destructive chronic affection, which has probably already committed fatal ravages on the constitution. Now and then, however, I have seen attacks of ascites apparently not preceded by either of these affections; and in these I have sometimes succeeded in obtaining an evacuation of the water, and in preventing a recurrence of it also. But such instances are so inferior in point of number to the others, that, in general terms, ventral dropsy may be described as a most fatal disease.

Paracentesis abdominis, or tapping, holds out the most rational hope. I have repeatedly tapped dogs; from some of which I have drawn off many quarts of fluid, sometimes of a gelatinous consistence, at others simply serous and thin. In some cases I have repeated the operation two or three times, which has tended to prolong life; but eventually the same fate awaited the greater number. The operation of tapping a dog does not differ in any respect from the same process in the human. A trochar is the most proper instrument for the purpose, but the operation may be performed by a lancet, and the puncture should be made

directly in the linea alba, or median line of the belly, about midway between the pubis and umbilicus, or navel; by which no important vessel, nor any thickness of muscle, will be endangered. If a trochar is used, make the puncture at once; but take care that it does no more than penetrate the cavity. Should a lancet be employed, do the same; but in this case, a quill having both ends perforate should form a canula after the puncture. The evacuation of all the water may be proceeded on at once without fear; the animal will express no uneasiness nor faintness; but will conduct himself as though nothing had happened. A bandage moderately tight should be applied round the belly, and retained there many days, or even weeks, to assist the absorbents by its pressure.

I have also tried various other means for the evacuation of the water, but they have seldom afforded any permanent benefit. In a very few instances only, diuretics have produced a salutary and durable effect: of which class I have found the digitalis, or foxglove, the very best. Now and then, however, other medicaments of this kind have succeeded when this has failed. I shall, therefore, detail such recipes as appear best suited to the case, observing that, with regard to the foxglove, it is most certain in its effect as a diuretic, as well in the canine as the human species, when it neither occasions sickness nor purging. The dose should, therefore, be always so regulated as to avoid these effects:—

No. 1.—Powdered foxglove ..... 12 grains
Antimonial powder ..... 15 grains
Nitrated potash *(nitre)* ..... 1 drachm.

Mix, and divide into nine, twelve, or fifteen parcels, one of which give night and morning.

No. 2.—Powdered foxglove ..... 9 grains
Powdered squills ..... 12 grains
Supertartrate of potash *(cream of tartar)*... ..... 2 drachms.

Mix, divide, and give as No. 1.

No. 3.—Oxymel of squills ..... 1 ounce
Infusion of tobacco (as directed) ..... half an ounce
Spirits of nitrous æther *(sweet spirit of nitre)* ... half an ounce
Tincture of opium..... .. .. half a drachm
Infusion of chamomile ..... 2 ounces.

Mix, and give from two tea-spoonfuls, to a large table-spoonful, night and morning. The tobacco infusion may be made by pouring two ounces of boiling water on a drachm of tobacco.

I have, in some instances, combined calomel with the other remedies to the amount of half a grain, or a grain, night and morning; and this apparently with benefit. I have also tried the effect of strong mercurial purges twice a week, in cases where diuretic medicines failed of relieving, Friction and the warm bath have been also used, but without apparent advantage[4]. In the few dropsies wherein diuretics succeeded, active stomachic tonics followed their use: in some instances they accompanied them. Nor should these be omitted where tapping is employed, as the only means likely to prevent the belly from again filling.

DROPSY OF THE SKIN (ANASARCA).

As before observed, this complaint very seldom occurs, unless as an accompaniment of ascites. I have, however, now and then seen it, and, in most of the cases, it was in old dogs who had laboured under some previous debility. In such instances, when any remaining stamina affords a chance for recovery, the treatment recommended for dropsy of the belly may be resorted to: very small punctures may also be made in the distended skin.

Hydrocephalus internus, or *dropsy of the brain*, can hardly be said to belong to the canine nosology; but on turning to the description of epilepsy, it will be seen, that morbid anatomy has shewn a diseased increase of the serous fluid of the cerebral cavity to be no uncommon circumstance.

Hydrorachis, or *dropsy of the spine*, by reference to former articles, will be found to exist without its congenital character, and that, perhaps, more often than we at present suppose.

Encysted Dropsy.—An accumulation either of serum, or of

[4] In one case, one part of oil of turpentine, with two parts of olive oil, rubbed into the belly night and morning, appeared to excite absorption; but it must be noticed, that the turpentine was also given at the same time internally, to the amount of thirty drops twice a-day.

a fatty or gelatinous matter, within a particular sac, is thus called. The *dropsy* of the *ovaria* is by much the most frequent of this kind, and, to a certain extent, is very common in bitches; but it is in these general cases, more an accumulation of fat than serosity. I have, however, seen instances of true ovarial dropsy of the hydatid kind, which all terminated fatally, although they proved very slow in their progress: they are to be detected by the swelling being less universally diffused, and having obscure undulation. The tumours may also be often traced to have commenced on one side only; sometimes it continues to occupy more of one side than the other: the enlargement, probably, first appeared in the loins, and did not extend downwards until it gravitated there by its weight. The treatment of these cases must be the same with that of ascites; but I never saw but one which did terminate favourably, and in that I discharged the fluid contents by a trochar effectually: in others, this mode failed, and even hastened the death.

Hydatids, independent of the ovaries, likewise now and then form a species of dropsy in other parts. I have seen them in the liver, the lungs, the spleen, and the brain.

Dropsy of the eye-ball is sometimes seen either idiopathic or traumatic.—See *Diseases of the Eyes.*

CLASS V.

Diseases of Glands.

CANINE SCIRRHUS AND CANCER.

Scirrhus in the human subject is considered as the primary stage of cancer; but dogs, though very subject to tumefactions which present much of the character of human scirrhus, and which degenerate into obstinate and increasing ulceration, yet do not often present an equal likeness of the human cancer. The canine scirrhus, likewise, is not wholly like that of our own;

for, instead of exhibiting various strata of morbid matter, the innermost of which is the most condensed, there are seen, in the canine tumours of this kind, appearances more resembling a collection of glands, or of firm hydatids; each of which exhibits on a section of it, a distinct diseased process. Scirrhous indurations appear to arise from the same causes that tend to the production of mange; namely, a superabundance of the secretions of some parts, the effect of a general fulness of habit striving to relieve itself. These tumours are, therefore, most frequent among dogs which are hotly kept, over-fed, and suffer much confinement.

Scirrhous mammæ.—The lactiferous glands are very usually the seat of scirrhous tumours, particularly among those bitches who have not been allowed to breed; especially when plethoric, and when their exertions and their feeding bear no proportion to each other. The origin of these tumours may be very frequently dated from an inflammation in the mammæ, from retained milk when the pups have died; or from the coagulating of that milk which forms, by sympathy, about the period a bitch would have pupped, provided she had been allowed to breed. A small nucleus, or kernel, not larger often than a pea, is first felt within the gland, which sometimes increases fast; at others it enlarges very slowly, appearing to give little uneasiness, until its weight makes it prove troublesome. If the tumour is not dispersed in this state, sooner or later, one or more small shining vesicles form on its surface, which ulcerating, ooze out an ichor or glairy fluid, but seldom produce a healthy pus. The first opening often heals up, but others follow; and, in the end, two or three, or more, appear at the same time, which, breaking in different parts, are soon licked into one sore by the animal; and although the ulceration does not spread rapidly, or put on the virulence of human carcinomatous ulcerations, it seldom heals afterwards, but, at length, wears down the animal by the continued discharge. While the tumour is externally whole, and is throughout indurated, without hydatid-like vesicles, it

may be, now and then, dispersed by the frequent application of active discutients, as

Muriate of ammonia *(crude sal ammoniac)*... 1 ounce
Acetic acid *(vinegar)* ..... 4 ounces.

Bathe with this three or four times a-day. Brandy and water, or vinegar, or common salt and water, are also good discutients. In some cases, the repeated application of leeches will be found beneficial. In others, the means recommended for the cure of bronchocele may be tried, with the addition of sarsaparilla. During the attempts at discussing these tumours, a repetition of the causes producing them should be carefully avoided, such as a sympathetic repletion of the teats from coagulated milk, and the obstruction to its passing off, by depriving them too early of their young; but particularly by avoiding whatever tends to produce repletion, as confinement, over-feeding, &c. &c.

As, however, all means at dispersing these tumours are very apt to fail, and ulceration almost invariably occurs, it follows that extirpation, or the cutting of them out, is the remedy usually necessary to be resorted to for their complete removal. This operation may be safely performed, in every instance, with only common precautions: out of innumerable cases on which I have operated I never lost one. It is, however, in general, prudent to let the tumour increase till, by its weight, it becomes pendulous, and detached from the abdominal muscles, when it may be dissected out without any danger of opening the peritoneum, or of wounding large arterial branches. In dividing the integuments, care should be taken to destroy but little of their surface, except such as may be actually diseased; for, by detaching the tumour neatly from its coverings by a careful dissection, and by leaving some sound integument, the wound much sooner closes, and the cicatrix which follows is necessarily smaller, and less corrugated. As the excision proceeds, the bloodvessels should be taken up; and, when the tumour is removed, two or three stitches should be introduced into the opposite edges of the skin to bring them together; by which the

cure will be considerably expedited. These stitches, however, ulcerate out in three or four days; but they usually have, by this time, performed their office, and the remaining wound will require only common dressing, with the addition of bandages sufficient to prevent the dog from interrupting the healing by her nose and tongue.

Wens and scirrhous tumours are not confined to the teats only; nor are dogs without them, as well as bitches. There is scarcely a part of the body but what I have seen these wen-like enlargements on; the treatment of which in nowise differs from the plans already laid down.

BRONCHOCELE, OR GOITRE.

Bronchocele is a steatomatous swelling of the glands of the throat, apparently of the thyroid, and is a very common complaint among dogs. Pugs, barbets, and French pointers, are peculiarly liable to it. In the human species, this disease is most common to the inhabitants of mountainous countries. But in dogs it does not appear endemial, and is more confined to some particular breeds. Other dogs, as terriers, spaniels, &c., sometimes, however, have it; but it is not frequent in these, and in the larger tribes it is very seldom seen. The swelling comes on generally while very young, and continues to enlarge to a certain size; after which it usually remains stationary, seldom increasing to such a degree as to prove fatal. It is, however, troublesome, and in some measure hurtful, from the pressure it occasions on the surrounding parts.

The *treatment* is not difficult, nor usually unsuccessful, when early adopted. Friction is of much benefit. Internally, one of the following balls should be given every day; in bad cases, twice a day:—

Burnt sponge	1 drachm
Nitrated potash *(nitre)*	half a drachm.

Make into six, nine, or twelve balls, according to size, &c.

Mild mercurial ointment..... half an ounce
Blistering ointment..... half an ounce.

Mix, and rub the swellings once a-day with a portion equal to a hazel nut, or a walnut, according to the size of the dog; first clipping away the hair, and, after the application, wrapping up the neck with a bandage, to prevent the ointment from being rubbed off. During the use of this application, the mouth should be examined now and then, to guard against the sudden attack of salivation. Should this treatment fail to remove the tumour, recourse may be had to the new remedy *Iodine*, which has proved so successful in the human goître, and in a few cases of goître in the dog also it has been exhibited with some success; but its extreme potency of action requires that it should be given only under the immediate superintendance of one well acquainted with its qualities.

SCIRRHOUS TESTICLES.

The *testicles* in dogs are sometimes also the seat of scirrhous induration. In such cases, one or both of these glands become hard, painful, and rather tender, with a shining fulness of the scrotum: occasionally ulceration takes place, but it is rare. If the tumour does not readily give way to the application of the active discutients that are recommended for the mammary scirrhi of bitches, try the effect of a regular administration of burnt sponge, as recommended under bronchocele. In some cases, mercurial frictions have succeeded; but, in default of these, proceed, without delay, to *castrate*, to prevent the disease from extending up the spermatic chord.—See *Castration.*

CANCER.

I have already stated that the virulence of the human carcinomatous ulceration, is *commonly* wanting in what I call the *canine cancer;* for though spreading and incurable, as regards its locality, yet it seldom extends beyond the precincts of the gland it is seated in; and if it ever makes further inroads, they

are slow, and not marked with constitutional derangement for a long time: are seldom, if ever, translated to the lungs; and do not appear to give those lancinating pains felt by the human victim. Still there are characters in it, which make the term applicable; and now and then also, more virulent features mark its progress. I have likewise *occasionally* seen the ulcerous affection, called *canker in the ear,* when of long standing, take on the true carcinomatous character, and extend rapidly over the muscles of the face, till, having destroyed one eye, and commenced its attack on the throat and tongue, the animal was destroyed. I have also seen cancer in its most malignant form in cats; first attacking the mammæ or teats, and then spreading over the abdominal muscles and surrounding parts.

Cancers of the vaginæ and uterus are by no means uncommon, and are sometimes occasioned by the foolish practice of exciting premature œstrum by stimulating injections; but more frequently by a brutality often exercised towards dogs, of dashing them with cold water, or of forcibly separating them during copulation. Cancer sometimes attacks the labiæ, at others the inner surface of the vulva, and sometimes extends to the uterus; but, in either case, it presents a fungous excrescence, of a deep red or of a more livid colour, with ulcerated uneven edges, while bloody ichor constantly distils from the surface. In the very few cases where I have seen animals suffered to live to the extent of the complaint, the fatal termination has been slow but certain: gradually, the morbid secretion of the part united with the irritation; but, principally, the former has worn down the animal.

When cancerous ulcerations have taken place in these or in other parts, I have seldom succeeded in restoring a healthy action, or of promoting a cure, otherwise than by excision. Now and then, however, I have experienced benefit from the use of the bruised leaves of the hemlock, as a poultice daily; with balls composed of one, two, or three grains of extract of hemlock (according to the size and strength of the dog), and ten, fifteen, or twenty grains of burnt sponge, in each; repeated once or twice

a-day, as the health would bear them. Extirpation is however the most eligible remedy, and may be, in most cases, practised with safety by an experienced surgeon or veterinarian. When cancer is purely glandular, from its circumscribed form, no difficulty will be found in detaching the whole morbid substance; but when it has attacked the muscular, cellular, or superficial parts, as the face, parieties of the abdomen, scrotum, vulva, or uterus, then the utmost caution is requisite to remove every diseased portion. It must also be taken into the account, that although, in the canine cancer, ulceration does not often re-appear in the immediate part, when the operation has been judiciously performed, yet, when the constitution has long been affected with this ulcerative action, it is very apt to shew itself in some neighbouring part soon after.

TABIES MESENTERICUS.

A *tabid state* of young dogs has already been touched on in the rearing of puppies: it is born with some, and acquired by others. Some breeds, particularly pugs and terriers, are singularly liable to it; dependent on the attempts that have been made to breed them very small, or to a particular "*fancy*," i. e., form or colour. In these cases, it appears hereditary, and is disseminated through the whole stock: it may also be produced after birth by close confinement, bad air, and the want of a due supply of healthy milk, or other nutritious food when that is dried up. The objects of it present a stinted growth, bowed legs, with the elbows directed outwards, coat staring, the belly pendulous, and a countenance of peculiar sharpness and sagacity. When it proves fatal, the mesenteric glands are found diseased, enlarged, and impervious to the transmission of chyle: morbid marks likewise are not unfrequent in the liver: the intestines also are often filled with worms, but which are frequently more a consequence than a cause; sometimes, however, they appear to occasion the disease.

The *treatment*, when worms are the cause, should commence by destroying them; when otherwise, act according to circumstances: if the milk of the mother be suspected, change it, or give cow's milk boiled with flour and sugar, with minced meat. Use the cold bath; allow wholesome air and exercise; use frictions to the body, give a mild mercurial aperient every third day, and on the intermediate ones a tonic ball of carbonate of iron, gum myrrh, and gentian. This disease is sometimes combined with rickets, *which see in the next class.*

CLASS VI.

Diseases of Bones.

RICKETS (RACHITIS).

Rickets is very like to tabies, in all its causes, and also in some of its appearances and effects: it is common to the same breeds, and is both occasional and hereditary. It is occasional when it meets with the circumstances of confinement, bad air, filth, and unwholesome food, or the milk of an unhealthy mother. Many whelps are *born* with the predisposition, among the fancy breeds in the confined parts of great cities and large towns, particularly pugs and the smaller sort of bull dogs: there is also a breed of wry-legged terriers which without doubt originated in ricketty specimens which were afterwards cultivated for particular purposes, principally rabbit-hunting. The affection often appears soon after birth; and shews itself by the slow development of the body, except in the head, belly, and joints, all of which enlarge at the expense of the rest of the parts: particularly it attacks all the joints of the extremities; these swell into protuberances, probably from a sympathy in the constitution to make up, by bulk, what the bones want in ponderosity, but which is not effected; for, deprived of their earthy solidifying principles, they yield to the superincumbent weight, and the cylindrical ones particularly become crooked. Cleanli-

ness, good air, free exercise, and wholesome food, will commonly prevent it in the future breeds of such dogs as have shewn a disposition to it. As a cure, an invigorating diet added to these, with the occasional use of tonic bitters if the appetite fails, or the digestion should appear defective, will answer the intention.

Unconsolidated fracture.—The phosphate of lime, or osseous matter which should form the callus of bones, in some cases is never deposited between their fractured ends, and a mere cartilaginous union remains. It is evident this is, in fact, a disease of the same nature, and probably originates in the same causes with rachitis; and if our instances were sufficiently multiplied, we should find this proved by fact.—*For the treatment, see Fractures and Dislocations.*

DECAYED AND TARTARED TEETH.

Sportsmen and persons living in the country, who are habituated only to healthy dogs, will smile at such a head line; but were they in London, or other large cities and towns, where dogs are petted and immured in hot apartments night and day; where also they are gorged with the richest food, and are not exercised but in a carriage; and withal are probably descended from a long lineage of parentage equally unnaturally treated; they would see sufficient of these effects of an imperfect digestion, to make them aware that this article is perfectly *in place;* and the remarks which follow are in unison with the general intention of these pages, to let nothing pass unnoticed which a long and critical attention to the habits and diseases of these animals renders necessary to be guarded against and remedied. In the dogs I have described, nothing is more common to find than carious teeth, insufferably fœtid; others displaced, preventing mastication; or an immense accumulation of tartar which covers them, erodes the gums, and makes the animal insufferably offensive. The veterinarian will often be called on to remedy these evils: the decayed teeth he must remove, and the displaced

ones also; the tartaric deposit he must likewise completely scale off with proper dental instruments; for the accumulation is not only most unpleasant to the owners, but injurious to the dogs, by its septic tendency, and its invariably ending in the destruction of the teeth. The ulcerations are best removed by touching them with a mixture of a proper strength made from the solution of the chloride of soda with water: by the use of this, these ulcers will quickly heal; and the continuance of it will do much to remove the remaining fœtor, and stop the further deposit of tartar, particularly if coupled with a corresponding improvement in the general treatment of the animal.

ANCHYLOSIS AND EXOSTOSIS.

Stiff joints, splents, and *spavins,* occasionally enter the kennel as well as the stable; and when not too far advanced in the ossifying process, may sometimes be checked by a blister repeatedly applied, at each application covering the part well up, and carefully muzzling the dog.—See *Blistering,* Class XII.

CLASS VII.

Calcular Concretions.

THERE is hardly any cavity of the body of the dog in which calcareous matter has not been found; as in the brain, in most of the glands, and in the intestines, where, occasionally, considerable masses have been detected, some of which had formed themselves a sac by distention of the intestinal coats. A case of this kind appears in No. 36 of *The Veterinarian,* where a calculus was found encysted within the parietes of the ileum.

URINARY CALCULI.

THESE are not very common, but however do exist; and nearly the whole pelvis of the kidney in one case was found to be occupied by a calculus; much pain had been suffered, much emaciation was

present, and whenever he urined, blood and mucus were passed with the fluid.

VESICAL CALCULI, OR STONE IN THE BLADDER.

This is a more common complaint than the last: I have myself met with several instances; and I have not less than forty or fifty calculi by me, which I took from a *Newfoundland* dog, after his death, occasioned by the obstruction to the passage of the urine by means of these stones. Death had already happened before I was called in, or probably relief might have been afforded by an operation; but the symptoms had been, constant difficulty in his urinary evacuations, until one of the number of calculi had entered the urethra, and had so blocked up the urinary flow, that mortification ensued. When a small calculus obstructs the urethra, and can be felt, it may be attempted to be forced forwards through the urethra to the point of the penis, from whence it may be extracted by a pair of forceps: if it cannot be so moved, it may be cut down upon and removed with safety. But when one or more stones are within the bladder, we must attempt lithotomy, after having fully satisfied ourselves of their existence there by the introduction of the sound: to do which it must be remembered that the urethra of the dog, in passing from the bladder, proceeds nearly in a direct line backwards; and then, making an acute angle, it passes again forwards to the bladder. It must be, therefore, evident that, when it becomes necessary to introduce a catheter, sound, or bougie, it must first be passed up the penis to the extremity of this angle: the point of the instrument must then be cut down upon, and from this opening the instrument can be readily passed forwards into the bladder. The examination made, and a stone detected, it may, if a very small one, be attempted to be pushed forward by means of a finger passed up the anus into the urethra; but as this could be practicable only where the dog happened to be a large one, it is most probable that nothing short of the operation of lithotomy would succeed. To this end, the sound being in-

troduced, pass a very small gorget, or otherwise a bistoury, along its groove into the bladder, to effect an opening sufficient to admit of the introduction of a fine pair of forceps, by which the stone may be laid hold of and extracted.

CLASS VIII.

Poisons, Mineral, Vegetable, and Animal.

Poison, though a very popular term, is yet, in some respects, a vague and indefinite one; as substances that are most noxious and destructive to one class of animals are perfectly harmless to others. Henbane (*hyoscyamus niger,* Linn.), which is eaten with impunity by horses, oxen, goats, and swine, proves most baneful to the canine genus. Opium, on the contrary, may be taken in considerable quantities, by dogs, without serious injury; but it rarely fails to prove fatal to the human subject. The phellandrium aquaticum kills horses, while oxen eat it without harm; and the hedgehog, we are told, will devour cantharides with impunity in large quantities. Poisons have, therefore, been divided into relative and common, or such as are hurtful only to particular classes of animals; and those which prove destructive to all, as the several oxides of mercury, arsenic, and copper; the concentrated acids, &c. &c.

Dogs are not unfrequently *poisoned* either by accident or design; and as the circumstance is sometimes discovered in time for relief to be afforded, so a knowledge of *counter poisons,* and of the general treatment proper on such occasions, form material branches of canine pathology; and as also, when no relief can be obtained, it is still very desirable for the ends of justice (when wilful poisoning is suspected) to be enabled to establish the fact of administering, and of the nature of the subject administered; so an acquaintance with the various substances commonly employed for this purpose, the symptoms produced by them, and

the appearances that the parts acted on present after death, are necessary portions of the canine medical practice.

The limits of the present work will necessarily confine me to noticing such articles only, as, by their popularity, are most likely to be made use of purposely to destroy, and such as chance may, with some probability, throw in the way of the animals themselves. Those who wish for further information relative to the effects produced on dogs by various poisonous agents, may consult Abbe Fontana, Orfila, Mr. Brodie, &c. &c., who have sacrificed more dogs, in experimental inquiry, than humanity dares to think of, though science might demand it.

Mineral Poisons.

Corrosive sublimate, or oxymuriate of quicksilver, is a most deadly and unmanageable poison to dogs, in doses as small even as five or six grains. Its effects are observed soon after it is taken, by the distress of the animal, by his frequent retchings, insatiable thirst, panting, and anxiety for a cool situation. The mouth becomes swollen; if the dose has been large, it appears ulcerated also, and emits a very fœtid odour, which circumstance forms a very strong characteristic both with regard to the animal's having been poisoned, and also to the article employed for the purpose. As the symptoms advance, the retchings are tinged with blood; the stools become liquid and bloody also; the heart beats faintly, but with rapidity: the extremities become cold; violent tremblings, paralysis, or convulsions follow, and death relieves the sufferer. On examination of the body afterwards, the whole alimentary canal, beginning at the mouth and proceeding backwards, exhibits marks of the corrosive nature of the matter taken. The stomach, on being opened, will appear covered with highly inflamed patches, and the villous folds of its inner and rugose surface will present gangrenous and ulcerated spots, and a ready separation of the mucous from the muscular coat, with blood often suffused between them; which circum-

stances only take place when a most acrid poison has been swallowed. The intestines also shew appearances of great inflammation, particularly of their inner surface, which will be found sprinkled with gangrenous specks, and, moreover, frequently filled with a thick bloody mucus. Such are the usual morbid appearances: but, satisfactorily to detect the presence of a poison, and the immediate nature of it, some of the liquid contents of the stomach and bowels, both before and after death, should be saved, and undergo a rigid chemical analysis. In general cases, the addition of potash to some of these liquid contents will occasion a light yellow precipitate when corrosive sublimate has been the poisonous agent[5]; but a practical chemist will employ many other tests.

The *medical treatment* to be pursued in these cases consists in both endeavouring to envelope and to neutralize the acrid matter: the former may be attempted by means of a glairy fluid, for which purpose the whites of eggs have proved the most effectual remedies, beaten into a liquid, given in large quantities, and repeated as often as they have been ejected: when these are not immediately at hand, milk may be substituted. Mild clysters should also be thrown up. When the stomach is somewhat appeased, give an opiate and castor oil. Large doses of soap, dissolved in water, have been recommended as a counter poison to corrosive minerals, or their preparations, and, in the absence of eggs, should be tried.

Arsenic.—This powerful oxide is often given to dogs, and not unfrequently they find it for themselves in a state of mixture with other matters placed to poison rats. The effects produced by it resemble those occasioned by corrosive sublimate, except that, although they prove equally fatal, they are not apparently so intense. The mouth, likewise, is not usually affected, in an equal

[5] A ready, although not a very humane, mode of detecting the presence of poisonous matter, is to give to fowls, birds, or any small animal, some of the early ejected contents of the stomach of the dog to which poison has been supposed to be given; but this ought never to be attempted, unless the ends of justice imperatively demanded it, and no tests could be procured.

degree, by this poison as by the other. Dissection, also, detects similar morbid appearances to those above detailed; but, unless a very large dose has been taken, there is not such complete lesion of the coats of the stomach and intestines, but the gangrenous spots and the excess of inflammation are fully sufficient to detect the disorganizing action of a mineral poison. Instead of subjecting the liquid contents of the stomach and bowels to the action of potash, as directed when corrosive sublimate is looked for, it is usual to detect arsenic by applying the blue ammoniacal sulphate of copper, which will produce a lively green if arsenic is present. A red hot iron will also occasion these contents to give out a garlic-like smell under similar circumstances.

The *treatment* proper, in cases of arsenical poisoning, is to give sugar dissolved in milk, in considerable quantities, until it may be supposed that all the poison is evacuated from the stomach, when a similar treatment is to be pursued to that before recommended.

Verdigris.—The rust of copper is often taken by dogs, from the careless practice of leaving acidulous remains of food in copper vessels. The effects produced are not unlike those already detailed, but less violent; neither are the appearances after death dissimilar, except that the ulceration and gangrenous spots are less strongly marked. The presence of copper may be detected by the prussiate of potash, which occasions a reddish precipitate in the liquid contents of the stomach and bowels when added thereto.

The *treatment* in nowise differs from that detailed in mercurial poisonings.

Lead.—I have frequently seen dogs fatally poisoned by drinking water from leaden vessels, or by lapping the water left in the hollows of the lead coverings of areas, &c. The same occurs likewise from the licking of paint, which they may have accidentally smeared themselves with; and it is to be observed, that a smaller quantity of lead in this way is sufficient to prove fatal,

than would be supposed. The symptoms produced are vertigo, violent griping pains, vomiting, with purging stools in some cases, and costiveness in others: towards the close of fatal cases, paralysis and spasmodic twitchings take place. On dissection of these bodies, there is seldom observed any lesion of the coats of either the stomach or bowels; but the inflammation is intense, and appears usually in patches. I have also not unfrequently met with intussusception.

The *treatment* is to be commenced by an active purgative, as sulphate of magnesia *(Epsom salts)*. Should this be rejected, a ball with calomel and aloes, and a quarter of a grain of opium, may be substituted, and may be repeated until the bowels are perfectly cleared out. The body should be afterwards kept soluble by castor oil; for I have always observed that a costive habit from paralytic torpor of the bowels remains some time after the action of lead.

Quicksilver.—When mercurial ointment is rubbed on dogs, without muzzling or covering them, it is very common for them to lick themselves, and to become, by this means, fatally poisoned. In such cases the stomach is usually but slightly affected, but a diarrhœa of great violence follows, attended with bloody stools, the consequence of ulceration in the bowels. In these cases, commence the *treatment* by giving a mixture of castor oil and white of eggs, in equal parts, sufficient to remove the offending matter; proceed next to wash off all the remaining ointment, and then give opiates and astringents.—See *Looseness*.

From this detail of appearances produced by the more active mineral poisons, both before and after death (which are all drawn from numerous and well defined cases that too frequently came under my notice), it will be apparent, that it is not difficult to discriminate between the inflammatory symptoms brought on by their agency, particularly when full doses have been given, from those inflammations occasioned by cold or other causes. When caustic mineral salts or acids have been taken, the symptoms are always more urgent, the progress more rapid, and the pain and

distress greater than when inflammation has proceeded from other sources. The fœtor from the mouth, and the bloody vomitings and stools, are also strong characteristics of acrid poisons in the living patient: those to be gained after death are the inflammation and gangrenous state of the alimentary canal; but more particularly the ulcerated state of the stomach[6] and bowels, and the early tendency in the whole body to become putrid and decomposed. The fœtor that comes from the diseased parts is likewise peculiar in these cases, being more than usually pungent and lasting; so much so, that I have distinguished it three months afterwards from the instruments, dress, and other articles used during the examination of the body: fortunately this can now be immediately removed by the chloride of lime.

Vegetable Poisons.

Opium.—In the former edition of the Canine Pathology, I stated that, as far as my experience went, *opium* was not deleterious to dogs when received into the stomach; for that very large doses of the solid mass were invariably returned from the stomach, and that smaller, though yet considerable ones, produced but little derangement of the system. Orfila, however, whose experience has been purchased by the sacrifice of whole hecatombs of dogs, asserts that opium will kill, although he acknowledges (and which corroborates my former remarks on it) that it is so variable in its effects, that he has often given very considerable doses without at all injuring the animal. When it does prove fatally deleterious, the symptoms detailed by him are convulsive efforts of all the muscular parts, succeeded by dejection and universal paralysis. On dissection, little appearance of inflammation is visible in the digestive organs, but there is more of it in the lungs. Orfila likewise observes (which fully agrees

[6] It is not very unusual for the solvent power of the gastric juice to erode through the coats of the stomach; but, in such case, the opening is one simple and determinate one only, and always situate at that part where the gravity of the gastric fluid has placed it particularly in contact with the stomach, and in no other.

with my experience), that the *narcotic* effect of opium is not apparent in the dog by any dose taken into the stomach; but it is a curious fact, that introduced either into the bloodvessels by injection, or into the intestines per ano, it exerts its narcotic influence fully.

Vomic nut, or crowfig *(Strychnos nux vomica*, Linn.)—This berry, or rather seed of a berry, is a native of the East Indies, and is a violent narcotic poison to many animals: to others it proves not equally noxious; but it does not appear wholly innocent to any. It possesses great power, but is very unequal in its action, not only on different animals, but also on the same animal at different times, and under different circumstances. It is a common but a very erroneous prejudice, that it proves poisonous to such animals only as are born blind. It is a deadly agent, not only to the whole of the canine and feline genera, but it destroys hares, rabbits, horses, asses, and most birds. It is irregularly deleterious to man, fifteen grains having proved fatal to one, and a whole nut or seed has failed to injure another. Leuriero relates, that a horse died in four hours from a drachm only. Five or six grains are sufficient to kill a rabbit or hare. I destroyed a very large rabid Newfoundland dog in five minutes and a half by a drachm of it, which was given in butter. Half a drachm was given to another, of middling size, which destroyed him in twenty-eight minutes; and twelve grains proved fatal to a smaller one in twenty-five minutes. A watery extract is more quick, as well as more certain, in its action, a few grains of which seldom fails to kill in a few minutes, if given in solution: it acts less speedily when given in the form of pills. But as it is, under all circumstances, not uniform in its action, so I cannot, as formerly, recommend it as a safe agent to depend on for the destruction of a dog. When it is actually necessary to destroy one of these valuable animals, humanity dictates that it should be done speedily, and in such a way as will prolong the sufferings as little as possible, and a note appended will point out one in unison with these

views. It is, however, sufficiently deleterious to make it very commonly resorted to on such occasions by malicious persons; particularly as it can be easily procured, under pretence of destroying vermin of various kinds. Like opium, the nux vomica fails to produce any of its soporific effects on dogs, when introduced into the stomach; but it occasions violent tetanic convulsions, laborious respirations, and general torpor, and it thus kills by robbing the nervous system of its energy; and that so speedily, that its presence is not easily detected by any morbid appearances brought on: neither are any means, unless immediately resorted to, sufficient to restrain its consequences. An emetic should be given within a minute or two after the exhibition of the poison; and this should be followed by a large teaspoonful of mustard, to give a reasonable chance of success.

Angustura pseudo ferruginæa.—A false species of angustura has entered into the shops of many druggists, and has occasioned considerable mischief. Some years ago, I unfortunately destroyed a very favourite dog by giving him, as a tonic remedy, this spurious article, which had been furnished me by my druggist, as the genuine angustura bark. This deleterious article, although it is decided by Humboldt to be nowise related to the angustura tribe, has yet been very generally diffused, and used as a substitute for the true bark[7].

Prussic acid.—In its highly concentrated state, this acid (which, it is fortunate, is extremely difficult to obtain, and still more so to preserve) is so active, that one, or, at the most, two drops applied within the eye, nose, or on the tongue, are sufficient to destroy life in a minute or two. It is to the presence of this acid that many vegetable substances, particularly all bitter kernels, owe their deleterious properties. The lauro cerasus, or cherry laurel, used in cooking, for the kernel-like flavour it gives under distillation, yields a water that proves

[7] L. A. Planch, a French apothecary, has accurately described the article in a memoir, entitled *Notice Chimique sur les Angustures des Commerce.*

poisonous to dogs. The essential oils of the cherry laurel, and of bitter almonds, are both so strongly impregnated with prussic acid, that a very few drops given to the largest dog prove immediately fatal[8]. An extract also, made from either of these articles, speedily kills in a small dose. The effects produced by all these are nearly similar: taken into the stomach, they destroy by at once paralyzing the sensorium: introduced immediately into the bloodvessels, most of them exert a narcotic influence, but are no less certainly fatal. An emetic immediately administered, and followed up by active spicy stimulants, as mustard, pepper, &c., mixed with vinegar, afford the best chances of arresting the baleful effects of these potent articles.

The *Woorara, Lamas, Ticunas, Faba sancti ignatii, Upas antiar,* and *Upas tienté,* are vegetable poisons, indigenous to southern and eastern climes, and by far more potent and deadly than our most noxious articles. Prepared with much art and care, these extracts retain their poisonous qualities a great length of time; and the smallest puncture made with the finest instrument, as a sharp dart or arrow, embued with a solution of either of these extracts, proves fatal, in some instances, within a minute. Mr. Brodie has detailed some experiments made by him with these poisons on dogs, which shew their dreadful activity. Mons. de la Condamine's experiments at Paris are still more frightful pictures of their potency.

[8] It is not unfrequently a subject of inquiry, how it may be possible to destroy a dog with least pain to himself, and least shock to the feelings of his owner. Although shooting and hanging are not, in themselves, painful deaths, yet the violence necessarily committed is revolting to one's feelings. It is both selfish and imprudent to familiarize the minds of servants to these acts. Whenever, therefore, cases arise (and many such do occur) where it would be infinitely more humane to destroy an animal than to prolong a miserable existence; and when the more usual modes are objected to on account of the violence and force necessary, either of these essential oils dropped on the tongue, or a very small ball made from the extract, will extinguish life almost instantaneously, and without pain.

RABIES CANINA, OR CANINE MADNESS.

History of Rabies.

The popular term of *madness* among dogs has, of late years, given place to the more classical one of *rabies;* but a slight view only of the subject is sufficient to shew, that this disease yet wants a name more strictly descriptive of its nature and character[9] than any of those in general use. The complaint

[9] The term *rabies* is, however, but a revival of its original name. Pliny calls the disease *rabidus canis*, and *canis rabiosa* is familiar in Horace, as well as in other ancient authors: but we have weightier objections to such nomination; for if *madness* be incorrect as depicting a state of wild delirium, ungovernable fury, and mental alienation, which never fully exist in the very worst cases, and are present only in shadow in the majority of them; then rabies as significant of unqualified rage, fierceness, and promptitude to do mischief *(Iracunde et rabie se facere aliquid*, Cicero), must be equally so. *Hydrophobia*, by which the canine rabies has been sometimes called, is even more uncharacteristic; in fact, it is a complete misnomer; because a repugnance to water, or dread of it, either taken inwardly, or when outwardly applied, forms no pathognomonic symptom here, but, on the contrary, may be considered as uniformly absent. Neither has it a full claim to be retained for the human malady: for hydrophobia is by no means invariably present in it; and if it were, it must have an adjunct to give it precision, seeing that a dread of water is a symptom common to several other diseases also, as hysteria, gastritis, angina, &c. Were it likewise peculiar to this complaint alone, and did it invariably mark and accompany every case, it must even then be objectionable; for *water* is not alone the dreaded object; and it can be only considered as a type of every thing liquid: for not only does every thing of this nature produce equal horror, but also whatever can, by a forced analogy, recal fluids to the recollection, does the same. This circumstance has, therefore, occasioned *hygrophobia* to be proposed as a substitute for *hydrophobia*. Cælius Aurelianus informs us, that some of the old writers called it *aërophobia*, from the effect which the motion of the air even produces: and others, determined to foil all criticism, have named it *pantephobia*, or a dread of every thing. Dr. Parry has proposed *rabies contagiosa* as a substitute for hydrophobia; but if he meant to apply it as a new term, he was in error; for Jos. de Aromatarius published a treatise *De Rabie Contagiosa*, at Frankfort in 1626. *Rabies*, however, equally exhibits an unfaithful picture of the irritability of the human character under the disease as of that of the dog: neither can we yield our suffrages to the adjunct *contagiosa;* for the best writers are not yet agreed on the extent of its contagious character, nor of the animals capable of propagating it. The term of *cynanthropia*, by which it has also been called, from a morbid supposition in the mind of the patient that he was personally identified with the dog, needs no comment; but

itself is, unquestionably, one of great antiquity; for we have authentic accounts of it for more than 2000 years. It is described both by Aristotle and Diascorides. Other of the ancients likewise notice it[10].—History has continued to furnish us with numerous traces of it, particularly in Europe, where it seems sometimes to have raged with epidemic fury, and at others to have been but little known[11]. In 1500, Spain was ravaged by it. In 1604 it was very common in Paris[12]; and 100 years after this, Germany became the theatre of this dreadful scourge among its wolves as well as dogs. Historians of every age have left short but frightful records of its dreadful visitations; and some works of magnitude, written by the authors of Spain, Italy, Germany, and France, have more fully detailed its ravages, but so blended with received errors, as to convey little information on the subject. The illustrious Boerhaave may, perhaps, be considered the first who, by attentive observation, threw light on the rabid malady in dogs[13]. In England, little had appeared worthy of notice before the account presented by Mr. Meynell. This celebrated sportsman published his memoir in the tenth volume of the *Medical Commentaries;* and if his account of canine madness does not exactly coincide with future representations drawn from a wider field of observation, it nevertheless characterizes the disease with considerable precision; and, at

in my own opinion there are less objections to *cynolyssa*, provided that λύσσα may be critically translated into *torment* from the bite of a venomous animal, which is said to be the case.

[10] Aristotle is however said to be the first writer who alludes to it. *(Hist. Animal.*, lib. 7, cap. 22.) But his opinion that it was not communicable to man, shews that it was in his time but ill understood. Some doubt also seems to be entertained, whether Hippocrates, in his *Coacæ Prænotiones*, intended to describe the rabid malady, when he says "Phrenetici parum bibentes, strepitum valdè percipientes, tremuli aut convulsi."

[11] Not that I believe the rabid malady ever arises spontaneously; but that sometimes the inoculation of it takes place under circumstances particularly favourable to its rise and future propagation, as will be hereafter explained.

[12] Journal de Henri IV, tome iii, p. 221.

[13] Aphorism 1135, where, although some error is apparent, yet much truth also appears.

the time it was written, was calculated to do infinite good, by banishing some dangerous and erroneous opinions relative to it.

In 1806, rabies among dogs became very common in England, and abounded in the vicinity of London, where, during the next year, it increased to such a degree, that a day seldom passed without my being consulted on one or more cases of it: sometimes I have seen three, four, or five a-day, for weeks together. In the two following years it continued to rage also: after which, for several subsequent years, it was less prevalent; but it never became apparently extinct or rare as before. In 1820 it was again observed to be on the increase, and for three or four years continued alarmingly common, when it again moderated for a few following seasons; but since 1828 its ravages have exceeded even its former bounds. Of these latter visitations I have been a more quiet spectator; but of those which occurred between 1805 and 1820, I was a very active one. The publicity which attached to my attention to the diseases of dogs occasioned constant reference to me on the subject, and threw such opportunities in my way of observing this dire malady in all its varieties in both man and beast, as had probably, *at that time*, never before fallen to the lot of any individual whatever[14]. These opportunities, I believe, I did not neglect; it was a field so little trodden, that the few truths which had sprung up, were choaked by error; and the importance of the subject at that time was such, that it became imperative on those whose experience enabled them to do it, to set the subject in its true light, and to divest it of many gross and serious mistakes that hung about it; and which none but those whose opportunities of observation were great, and whose

[14] Since that time, the opportunities of Mr. Youatt have been even much greater than my own, uniting, as he was enabled to do, what he saw with me, with what he has subsequently seen; and how well he has profitted by them, the valuable papers he has written on the subject, now condensed into a pamphlet, published by Messrs. Longman and Co., will testify; and to which I would, by all means, refer the interested or inquisitive reader: taking myself this opportunity of expressing my obligations to the same source, for an extension of my *own* views of the matter, and for many valuable facts also.

inclination to profit by them was also considerable, could do. Towards the close, therefore, of 1807, I placed before the public, in a *Domestic Treatise on Horses and Dogs*, a detailed account of rabies; and soon after, being requested to furnish an account of it also for the Cyclopædia of Dr. Rees, a condensed form of it was there inserted.

It becomes not me to say further of these accounts; but others have said of them, that they furnished the most faithful picture of the disease that had, at that period, ever appeared[15]. I would

[15] The alarming prevalence of rabies at the periods alluded to, produced innumerable papers, tracts, and even volumes on the subject, of which there were but few that did not borrow something from one or other of the above sources. Of these writers some had the candour to own the obligation; others contented themselves with adopting and then offering as their own, as much as suited their purpose: while one or two have even affected to dispute the correctness of my views, apparently less from a legitimate search after truth, than to favour the different opinions they had formed of the subject. Among those who omitted any such notice, I must quote Dr. Gilman, who, in his justly admired *Prize Dissertation*, may without hesitation be said to have borrowed much from me. Dr. Parry even observes of it, "that the symptoms of rabies were evidently taken from the article *Dog*, in Rees's Cyclopædia, or at least from the same source." *Rabies Contagiosa*, pp. 170-1.—Dr. Gilman had ready access to the author of that article, and he found him, when they met at the house of Mr. Boyd (a gentleman whose hand had been lacerated by a rabid dog), most ready to afford him every information on the subject, and to lend him the work quoted. If in any way I assisted in the great cause of humanity (and humanity itself was concerned in the production of so valuable a work as that of Dr. Gilman), I am gratified; and had the ingenious author acknowledged the debt, it would not, I hope, have detracted from his fame, while it would have been creditable to his candour. I would also appeal to Mr. Lipscomb, and to a few others, whether they did not find me always ready to furnish them with all the information they sought for: but I never saw or heard of any one of them afterwards. They are welcome, but this is not my plan: on the contrary, it is my pride never, knowingly, to have committed a literary theft, by becoming a plagiarist: when I differed, I have endeavoured to express my dissent with candour; and where I have borrowed, I have owned the obligation: and of this I am assured, that there is full as much of sound policy as honest principle in the practice. Silence, however, is charity, compared with a method pursued by some authors, of abusing whatever they cannot confute. Of this unfair practice the *Treatise on Rabies Contagiosa*, or *Canine Hydrophobia!!* by the late Dr. Parry, of Bath, is an instance. Dr. P., to establish an untenable theory of his own, endeavours either to make the statements of others bend to the view he has taken, or otherwise attempts to throw discredit on such as he finds too stubborn for his purpose. From observation

hope, therefore, that, in the present detail, as much has been added on the subject to each several edition of the work, and to none

made on three *hydrophobous* cases only, and on but one or two *rabid* ones, he affects to disprove the vast mass of testimony offered by other observant and distinguished professional characters, during the last century; affirming, that by all of them, the disease, in both the human and brute subjects, has been equally mistaken in cause, appearance, and effect. The facts, which the unlimited opportunities afforded to myself and Mr. Youatt, enabled us to lay before the public, militated much against these new views of Dr. Parry: and as the general credence given to our statements, and the weight which was at that time attached to our opinions, would naturally offer some hindrance to their progress, it became, therefore, a great point with him, to throw a disparaging shade over our writings in particular; and the consequence was, that they were neither examined with candour, nor contradicted with courtesy. On the contrary, to produce an appearance of discordance and opposition between their several parts, he selected detached and remote passages, and placed them *continuously*, purposely to give them the appearance of a *contradictory whole;* in which way it is evident that the most perspicuous writer that ever put pen to paper might be betrayed into the most glaring seeming inconsistencies. This dogmatic denial of palpable and well-known facts is of little consequence to us, comparatively with the extreme danger of reviving one of the most injurious errors which the barbarism of former times had retained in some writings, and in some prejudices: but had not Dr. P. maintained that the rabid dog dreaded water as much as the hydrophobous man, he was fearful he should not establish his favourite theory, *that the human and brute malady are wholly the same in cause, appearance, and effect.* "Laryngeal spasm" is, with Dr. P., the foundation of both diseases; and as the hydrophobic symptom is one resulting from this spasm in the human subject, *hydrophobia must necessarily be present in the dog also;* and to establish the doctrine, he denies testimonies the most numerous, credible, and even then very generally established. Without a marked instance in which this laryngeal spasm was present in the dog, he pronounces every canine case, in which there is not *a manifest dread of water*, to be spurious; and, in fact, any disease but rabies. However, in the total absence of facts, nothing remained but to resort to arguments; and of what nature Dr. P.'s were, may be gained from the following specimen, which does not stand alone in futility. "How, if no dread of liquids exists in mad dogs, came the disease to be called in all ages, hydrophobia?"—*Rab. Contag.* p. 145. To which it may be replied, in the first place, Has it been so called in all ages? Has it not been already shewn, that the ancients had other and more appropriate designations for it? Is it not also equally true, that as experience and observation led us to distinguish between the pathognomonic signs, as they appeared in the human and brute constitution, the names applied to the two diseases became effectually disjoined? Neither in the obscurity of the last century, or the more early periods, was canine madness so called, when specifically noticed. It was only so nominated cursorily, and in common parlance, by persons not even pretending to scientific discrimination in general, or conversant with the complaint in particular. Et s'il etoit possible de sou-

more than the present; that what follows will be found to more amply elucidate former opinions, correct erroneous or doubtful positions, and to collate new and illustrative facts.

The necessity of a precise and clear knowledge of this direful malady cannot but be evident, when we consider its present prevalence, and how difficult it has been to wear away in the public

lever le voile dont le temps a convert la science des medecins grecs, nous verrions probablement qu'ils n'ont point confondu l'hydrophobie simple avec la rage, puisqu'ils les designoient par deux expressions tres-exactes, *hydrophobia*, horreur de l'eau; et *cynolysson*, rage du chien.—*Trait. de la Rage, par Mons. Trolliet*, p. 267. It may be added also, that we have innumerable instances of names borrowed from the human and applied to the brute, and *vice versâ*, from an ideal resemblance; although the designation might be essentially as completely a misnomer as the present. Towards Mr. Youatt, Dr. P. acted with even greater want of urbanity; for an intimacy in early life with his father might have lessened the severity, even if it could not ward off the justness of his criticism. Yet with a feeling that does Mr. Youatt infinite credit, his retort is thus mildly couched,—"Let this uncandid review, and gross mis-statement of some cases, published by me fifteen years ago, be now forgotten. The wound rankled for awhile, and the more so, as inflicted by the friend and fellow-student of my father. He now sleeps in peace. He was a scientific practitioner, and a good man." The cases alluded to by Mr. Youatt, and which were so unmercifully handled, appeared in the *Medical and Physical Journal*, and in the *London Medical Repository;* and were drawn with that perspicuity and accuracy which mark his other scientific productions. That they were faithful portraits of the disease, his extensive opportunities and habits of observation will vouch, and every other author acknowledges; yet Dr. P. denies the existence of every one of these as a true instance of rabies: on the contrary, so well versed does he think himself in *canine pathology*, that, by the mere statement of symptoms, he takes on himself to pronounce some of them Bronchitis, some Pneumonia, and others pure Inflammation of the Fauces!!! What opinion must Dr. Parry have of his own discrimination, who could thus, on the questionable evidence of one or two cases only, and those most unsatisfactorily examined, question and deny the united testimonies of two persons, who could have no interest in deceiving, but every stimulus to offer the truth, and whose united opportunities *extended to the personal and minute examination of many thousand cases!!!* As regards this truly acute author, and I believe generally respected man, I would say, with Mr. Youatt, "*Requiescat in pace;*" but I conceive the cause of truth rendered it imperative on me to resist this attack as I have done; for Dr. Parry must ever be considered as a formidable antagonist, wherever science offered an arena; and as the "*Addicti jurare in verba magistri*" is apt to influence the opinion of those who either want leisure, inclination, or ability to think for themselves, and as I conceive that the errors he advocated were of vital importance to the safety of mankind, I do hope to rebut them, and to make the contrary apparent in the course of my description of the disease.

mind, the errors and prejudices with which the consideration of it was fettered. Although, for ages, even, the plague has hardly been more dreaded, yet in this, as well as in other countries[16], no equally important subject has been less understood or more misrepresented. As already shewn, its popular name of *madness* conveys an erroneous and hurtful impression with regard to it; and where it has been called hydrophobia, it has tended to keep alive an absurdity greater than the other. The *wormed* dog is still by many thought to be rendered incapable of *taking* the disease; by others, he is only *harmless* if he does become affected: both are errors of the grossest kind, and lead to very serious dangers. That a mad dog carries his tail between his legs —that he is instinctively avoided by others—that bread, meat, &c. besmeared with the saliva, blood, or any of the secretions of a mad dog, is refused with horror by others—that the bite of a healthy dog, should he become at any time afterwards rabid, is dangerous—are all equally erroneous, although even now very prevalent.

The history of the rabid malady may properly commence by an inquiry into its origin. I have already noticed its antiquity; but its direct flow in the stream of time is difficult to follow: in the obscurity of our early records we have no means of tracing the place of its first appearance.

The *spontaneous origin of rabies*, like that of small-pox, measles, and syphilis in the human, is unquestionable: all arose from some peculiar morbid combinations, communicable to other

[16] In the former edition I offered proofs, that the errors and prejudice which existed on the subject among our French neighbours also were little less than than our own: neither did such notices as had reached me from Germany, Spain, and Italy, evince more just views of it. The demi-official publication of Messrs. Enaux and Chaussier, that had been brought forward at the express instance of the French government, was a meagre performance. Mons. Trolliet is much better, but can hardly be pronounced good. Hurtrel D'Arboval, with his usual acumen, has gleaned the best, yet has not made a harvest; but I have reason to believe the subject is advancing fast there, as well as here, and we already have to own many powerful competitors in their authors. Dr. Hertwig, Professor of the Veterinary School at Berlin, has lately published the best summary of symptoms that I have met with in any continental work.

individuals of the species by *contagion*. The human diseases quoted, are by long experience now very generally allowed to be confined to a contagious origin only; for it is well known that these maladies were not indigenous to any of the newly discovered countries, however extensive their tract, and whether intra or extra-tropical, but that they only followed the march of their invaders. Now, as canine madness stands precisely in the same situation with syphilis, small-pox, and measles, there being yet many countries where it is unknown; are we not warranted in concluding, that neither does that also now ever arise spontaneously? But we must not content ourselves with analogy in searching after important truths, and this is a most important one; as upon it must be grounded our capability, or otherwise, of a total extermination of the disease. Opinions grounded on experience are valuable; hypotheses from minds accustomed to deep reasoning and extensive research are to be respected; but it is on *facts* only that we must mainly rest. There are authorities of respectability who maintain that rabies is yet spontaneously generated[17]; and if such be the case, no legal enactments of what-

[17] The illustrious Boerhaave seems to have indulged such an opinion. "Oritur fere semper ab aliis animalibus prius rabiosis suscepta contagio; tamen et sponte quibusdam orta legitur et observatur." Aphorism. 1130. Sauvages favoured an opinion of its present contagious origin, and Orfila has even carried the capability into other animals also. Dr. Hamilton, an elaborate writer on rabies, advocates the probability of a spontaneous origin from a *new poisonous compound*, generated from *putrid* sordes, surrounding the animal, when the body is in a particular situation or condition. Query, What situation or what condition? The rabies which Professor Rossi roduced by keeping cats shut up in a room was *symptomatic*, and not the specific and communicable disease. Majendie, Dupuytren, and Breschet, subjected dogs to the utmost state of filthy and close confinement for a long time; and though they became very generally diseased, not one became rabid. If putrid animal sordes could originate rabies, how often must it break out among the dogs of the lower class of *dog-dealers* and *fanciers* in London, where hundreds of birds, rabbits, guinea-pigs, &c. with every variety of dog, are confined in one small close room, or cellar? neither is it probable but cases of close confinement must have been frequent in those countries which it has never yet visited. Dr. Gillman likewise embraces a similar opinion apparently on the authority of a single case, the correctness of which there is great reason to doubt. Mr. Coleman also advocates spontaneous origin from the same causes with Dr. Hamilton; and such an opinion, from such a source, I am both

ever severity, short of the extinction of the whole race, could secure us. There are others also (and by much the most numerous, and, without any offence to the former, by much the most experienced) who maintain that the disease is never now of spontaneous origin[18]. My own opinion, formed on an acquaintance with it of twenty-five years, in a great many of which the rabid cases amounted to several hundreds per year, is most decidedly in favour of the contagious origin of the disease, and none other. While I was thus in the midst of it, I never met with one instance where it occurred in a dog *wholly secluded* from the access of others. I have met with cases where the utter seclusion has been peremptorily stated; but not only have such statements, on examination, invariably been found untenable, but they have served, in most instances, in a remarkable manner, to confirm the opinion here advocated[19]. Great as my opportunities have been, they,

surprised at and sorry for. I am naturally *surprised* at so acute a reasoner falling into, what I deem, an error, in the face of so many facts confirmatory of its contagious origin only. I am *sorry* for it, because, in a teacher deservedly so high in estimation, the error is likely to be diffused. Dr. Elliotson is also among this number; and Mr. Dewhurst, a very respectable medical practitioner, likewise ranges himself on this side, and details a most dubious case, which he considers in proof of it, in No. 32 of *The Veterinarian*, but which is most ably answered by Mr. Youatt in No. 33 of that work, where he demonstrates, that the morbid appearances after death were clearly not those of rabies, and the symptoms, while living, Mr. Dewhurst was unable to give. As a spontaneous and symptomatic hydrophobia takes place in the human occasionally, from the excitements of phrenitis, hysteria, gastritis, &c.; is it not probable also that a symptomatic irritation, which may by a partial observer be mistaken for rabies, may arise in dogs also from various causes? Indeed we are warranted in concluding from observation, that such cases do occasionally occur, and so occurring, cause much error and confusion in our conclusions: because the observers fail to bring such cases to test by post-mortem examination and by the inoculation of others from the salivary secretion of the suspected animal: wherever it has been done, it has always failed.

[18] Mr. Meynell was so convinced of the invariable origin of the disease from inoculation, that he always made every new hound perform quarantine before he entered the pack.

[19] With how much apparent confidence persons may assure themselves of the impossibility of the inoculation of some dogs which have become rabid, and yet how easily it is to be totally in error on the subject, the two following cases, out of many, may serve to shew:—I was requested by a gentleman, residing in *Wimpole Street*, to examine a dog, which I at once pronounced rabid; on which

however, are much exceeded by those of Mr. Youatt; for he not only partook in very many of those from which I drew my conclusions, but also of a still greater number since; and how intent he has been in forming accurate notions of the disease, his extensive experiments on it, and his published accounts, will testify. His sentiments on this head, therefore, cannot fail to have weight; and what are they? After debating the point in his pamphlet before noticed, he says, "I think we are justified in concluding, from the foregoing statement, *that rabies is produced by inoculation alone.*" The "*I think*" was pure parlance, and meant *assurance strong*, as reference to the work will shew.

he promptly informed me, that if the dog was so, he certainly must have become so without infection (which he knew was in direct opposition to my opinion); for that this dog, which was a very great favourite, had never, for many months, been out of doors alone, nor, indeed, at any time, out of the sight of either himself or his valet, who was also attached to the dog, and had the express care of him when his master was absent. As, therefore, neither of them had ever seen him bitten, they were positive on the subject. Anxious to arrive at the truth, where so important a matter was concerned, I commenced a close examination of the other servants, and it was, at length, remembered by the footman, that one morning, when the master's bell rang for the valet to take this dog from the bed-room, as he was accustomed to do, his absence occasioned the footman to answer it; and this man distinctly recollected the dog accompanying him to the street door, and also that, while engaged in receiving a message brought, he distinctly remembered that the dog went a little way into the street, and was suddenly attacked by another that passed, seemingly without an owner. Here was an explanation of the apparent difficulty: this passing dog, there is little reason to doubt, was rabid, and, pursuing the usual march of mischief, he bit the favourite.—Another case, even more confirmatory of the possibility of becoming mistaken on this subject, is that of a Newfoundland dog, which was constantly chained to his kennel during the day, and suffered to be at large only during the night within an inclosed yard. This dog became rabid, and, as no dog was known to have had access to the yard, it seemed to be an established certainty in the mind of his owner, that he *generated* the disease *spontaneously*. This case I also sifted with great perseverance, to elicit the truth; which was this; that the gardener to the family remembered, one night in bed, hearing an unusual noise, as though the Newfoundland dog was quarrelling with another, but which, from the dog's confined situation, made him believe was impossible, and he therefore took no notice of the subject. He also recollected, that, about this time, marks of a dog appeared in his garden, which, on account of the height of the wall, surprised him; and he further remembered, that remains of hair were discovered on the wall which separated the garden from the yard where the dog was confined, but which circumstances, until strict inquiry was

The Alleged Causes of Rabies.

The remote causes of spontaneous rabies, as advocated by the favourers of that doctrine, are various. *Heat* has long been considered as a grand agent, but the direct proofs to the contrary are fast wearing away this prejudice. It is known that many countries under the torrid zone are entirely free from canine madness; and in such as it is found, it does not appear to gain any accession to its frequency or morbid character[20]. We have Burrows' authority for stating, that it is almost, if not entirely, unknown over the vast continent of South America. In many of the western isles it is a stranger; and, in Egypt, Volney says he never heard of it. Larrey, Brown, and others, inform us, that it has never visited the burning clime of Syria. Neither is it more prevalent in cold climates; and although it sometimes visits northern latitudes, it shews no preference for them, and, in Greenland, is said to be altogether unknown. In temperate climates, on the contrary, it is most prevalent, not perhaps owing any thing to an extra-tropical situation, but merely because in such latitudes the most populous countries are usually situated; and, in such, all matters of interest are more likely to be noticed. In the United States of America, it is sufficiently frequent[21], and throughout Europe we are but too well acquainted with it.

made, had excited no attention. About the same time, the neighbourhood, it appeared, had been alarmed by the absence of a large dog belonging to one of the inhabitants, which had escaped from confinement during the night, evidently under symptoms of disease. Here, also, a ready solution of the difficulty occurred; and there is no reason to doubt but that the cases detailed by Dr. Gilman and Mr. Dewhurst originated under circumstances equally accidental and unnoticed.—*See Mr. Youatt on the subject, also Vet.* 33.

[20] It cannot, however, be denied, that heat *accelerates* the attack in such as have been bitten, particularly when conjoined with great bodily excitement. In this way, a dog that has been inoculated, but in which the disease might not appear probably for weeks, by taking long and severe exercise in very hot weather, is almost certain to be attacked with it the next day. This I have witnessed in several instances, but in no dog that I could not distinctly trace to have been bitten. Bitches in heat, and the dogs which follow them, are thus exposed to have the attack hastened also; but these circumstances never generate it, as supposed by some persons.

[21] *Med. Trans. Philadelph.*, vol. i.—*Med. Inquir. Philadelph.*, 1798.

Seasons have also been alleged as the probable cause of madness among dogs; and, as might be supposed, *summer* has long been famed for its superior germination of it; and the dog-days probably owe their name to the fancied prevalence of it then[1]. But it is now sufficiently notorious that rabies is not more prevalent at one season than at another[2].

The quality and quantity of the food has been assigned as a cause of rabies; but in dogs which have been accidentally subjected to a deprivation of food, bordering upon starvation, it never yet took place[3]. *Repletion* has never occasioned it, although it has proved the parent of many other inflammatory affections. *Putrid food* has been fully proved to have no title to generating it: neither would it, *à priori*, be likely to produce it in predatory animals, whose stomachs must, by nature, be formed to subsist on matter in various stages of decomposition. In Lisbon, in Constantinople, and other eastern cities, dogs are the only scavengers; and, at the Cape of Good Hope, Barrow informs us, the Caffrees feed their dogs wholly on putrid flesh, and no such disease is seen among them. Abstinence from water is an old and popular supposed cause of madness; but, in India, where, from the drying of the water-tanks, many brutes perish;

[1] When Sirius reigns, and the Sun's parching beams
Bake the dry gaping surface, visit thou
Each ev'n and morn, with quick observant eye,
The panting pack. If in dark sullen mood, &c. &c.—SOMERVILLE.

[2] Hurtrel d'Arboval observes, that rabies among dogs is most frequent in France in May and September, and that March and April usually produce the greatest number of rabid wolves: but this prevalence is undoubtedly very much under the influence of circumstances. M. Andry, in his *Récherches sur la Rage*, Paris, 1780, observes that January the coldest, and August the hotest months, furnished the fewest instances. Il n'est point vrai que cette maladie soit plus commune pendant les froids rigoureux de l'hiver, ou les chaleurs excessives de l'été, qu'au printemps et en automne.—*Trolliet.*

[3] Among innumerable experiments which have been made, I will only notice the cruel but striking one at the Veterinary School of Alfort. Three dogs were chained, fully exposed to the heat of the sun. Nothing but *salted meat* was given to one; *water* alone to the second; and *neither food nor drink* to the third. As might be expected, every one perished; but neither of them exhibited the slightest symptom of rabies.—See *Dissertation sur la Rage*, by M. Bleynier, Paris.

and in northern latitudes, where the supplies are frozen, yet madness is not observed to be the consequence of either. In fact, in the rage for experiment, dogs have been purposely subjected to all these supposed causes, but without having once produced the disease. It is unnecessary to combat the opinion of Dr. Mead, and others, that an acrid state of blood, from the want of perspiration in the dog, is a remote cause of madness. Neither have we more reason to suppose that any state or peculiarity of atmosphere can give rise to it, although it may favour the extension and activity of the contagion.

But if none of these causes engender the rabid malady, can we yet attribute the extreme variations in its prevalence at one time in preference to another; its visitation of one district, and its almost total absence from those around it? Can we account for these on the simple principle of contagion? that is, must every dog be actually inoculated with the rabid virus? In this I feel myself warranted in replying in the affirmative; for there is little reason to doubt, that, in certain situations, and during certain seasons, peculiar changes take place, which prove decidedly favourable to the germination of the rabid virus[4]; and to which we ascribe its appearing *endemial* at one time and *epidemial* at another. The same circumstances, also, may occasion a more early development of the disease (as I have already proved with regard to heat and excitement), and in this way increase its apparent prevalence, by bringing numerous cases *together*, which would otherwise be spread over a greater extent of time.

Was the dog the immediate species of the caninæ in which rabies first originated?—This is a question not easy of solution, though many from localizing their views, would be led to promptly answer yes: but where the *wolf* is still found in great numbers, he has equal aptitude to take on the disease by inoculation; even

[4] It was the decreased predisposition to take on the disease at that particular time, which made the experiment of Dr. Hertwig, veterinary professor at Berlin, so unproductive. He inoculated fifty-nine dogs with the virus, and yet only fourteen became rabid: at another time it is not unlikely that the numbers might have been very different.

more disposition to spread it; and at least equal capability, from the virulence of his virus, to make it certain in effect: some accounts would even give to it a most frightful activity[5]. *A priori*, therefore, we have as much right to assign the palm of priority to the wolf, as to the dog; and could this attached friend of man speak for himself, he would willingly give up his claim: as, however, the traditions of three thousand years have assigned it to the dog, let it rest. The *fox*, we have also sufficient proof, is a subject of the affection; yet the extreme rarity of vulpine rabies, even in those countries where he abounds, would lead us to conclude, either that his inherent aptitude to germinate the contagion is small, or that his solitary habits exclude him from attack. Of the *chacal* or *jackal*, as a canine congenor, I know nothing decisive: he has been said to have been seen rabid; but I believe the authority is questionable. Some of the favourers of a spontaneous origin in the disease include the cat also: we certainly do know that this animal is capable of receiving and of communicating it, but we have not one authentic fact of which I am aware to give us reason to suppose it is ever generated by grimalkin: there have been also statements of the same kind with regard to other animals, and to man also; but they are wholly unauthenticated, and very generally disbelieved.

What rabid animals are capable of communicating it.—For a long time, the facts which should elucidate this point accumulated so slowly, and then were so discrepant, that it was difficult to come to any conclusion on it. At first the propagation was thought to be limited to the canine and feline genera: gradually

[5] Fortunately, the ravages of the rabid wolf are unknown among us; but in France, Spain, and Germany, they are but too common. His savage nature makes him, under the excitement of this inflammatory disease, highly ferocious, and he seeks objects of every kind wherein to propagate his own sufferings; and as his size enables him to reach it, so he commonly inflicts his wounds on the face, and thus he more certainly insures a fatal issue. The extent of some of these ravages may be gained by reference to Astruc Mem. Montpellier, 1819; d'Arluc Recueil Périodique, tom. 4; Baudot Mem. de la Soc. Roy. de Med.; Gazette de Sante du 11 Sep. 1813; Journal de Med., tom. 39; Histoire des Ravages causée par Louve enragée, dans le departement de l'Isere en 1817; Trolliet.

we were constrained to admit that other quadrupeds besides these had by their bite produced it also; but as such as could be well authenticated were partially if not wholly carnivorous, so the capability was then, in the opinion of many, confined to them[6]. Other facts are on record which have brought man within the propagating class[7]: the horse, badger, and pig, also are more than suspected, and the result has been, that Mr. Youatt states his full conviction that "the virus of *every* rabid animal will communicate the disease." This gentleman's own opportunities for conclusion, united with the ardour of his research, afford a presumption that such may eventually be found to be the case: it, however, becomes us to pause in the absence of conclusive evidence. Our extended experience has therefore taught us, that quadrupeds universally seem obnoxious to it; the feathered tribe appear also not exempt; but how much lower in the scale the liability extends, we are yet to learn.

It was the opinion of Huzard, founded on a series of experiments, and again repeated at Alfort, as well as of Professor Betti, of Florence, an experimentalist also, that herbivorous animals are incapable of producing the rabid malady. Drs. Vaughan and Babington also equally failed to propagate it from the herbivora. Others likewise of our most eminent medical practitioners think the propagating power confined to such animals only as naturally employ their teeth as weapons of offence. Sir Astley Cooper, and Mr. Coleman also, I believe, think thus, and it must be allowed that there is a great air of philosophy in the limiting the power of generating the disease to the carnivorous and pugnatory classes. But it must, at the same time, be allowed, that some objections present themselves to the theory; one of which is, that the human saliva has produced rabies by inoculation: to which, however, it will probably be replied, that man is half carnivorous; he has also canine teeth: by which mode of argument casuists may attempt to save the credit of the theory as regards the horse, which has been said to have produced the disease; for he also has canine teeth, and most certainly uses them pugnaciously in retaining his hold first taken by his incisors.

[7]On the 19th of June, 1823, in the presence of numerous medical students, MM. Majendie and Breschet, in the Hôtel-Dieu, absorbed some of the saliva of a man then dying of hydrophobia, by means of a bit of rag, and conveying it only twenty paces from the bed of the patient, they inoculated two healthy dogs with it: one of these became rabid on the twenty-seventh of July, and bit two others, one of which so bitten was attacked on the twenty-sixth of August. Mr. Earle, of St. George's Hospital, also inoculated several rabbits with the saliva of a woman with hydrophobia, some of which became rabid. Dr.

The saliva of a rabid animal contains the rabid virus.—Is it the only animal secretion which is thus empowered? This is a point not yet determined. It has been thought, that the frothy secretion about the mouth was principally bronchial. In the human subject it is possible that it is so; but it is more than probable that it is not entirely so, but that the saliva is in intimate mixture with it. It has been a question, therefore, whether this bronchial secretion is capable of producing the disease. Mons. Trolliet, a French author of some repute, asserts, *that this alone* is the vehicle of contagion[8]; and, to make good his premises, he asserts, that the salivary glands, living or dead, present no marks of affection; but the mucous bronchial surfaces always do. On this I have to remark, that the statement is totally at variance with my own observations; the salivary glands being, as far as I recollect, in every instance, involved in one common inflammation with the parts around, themselves being also individually, sometimes very highly, injected, and always enlarged; while, it must be observed, the bronchiæ are not always marked with traces of active inflammation. In this respect, Mr. Youatt's experience coincides with my own[9]; but we both regret that we

Zinche, of Jena, has proved that the common fowl can be made rabid by the canine virus. *Valentin. Let. sur la Rage, Jour. de Med.*, vol. xxx. This will serve to strengthen the faith in the account of Mr. King, of Clifton, who produced rabies in a fowl by means of the saliva of an ox, which had just died of that complaint.

[8] *Propositions Aphoristiques:* 1. "La salive n'est point le vehicule du virus de la rage. 2. Les gland salivaires ne presentent ni douleur dans le cours de la maladie, ne traces d'alteration après la mort. 3. La bave equemeuse est étrangère à la salive; elle vient des vois aériennes. 4. La membrane muqueuse des bronches est le siège d'un inflammation spécifique; elle produit le virus de la rage, comme la membrane muqueuse de l'urèthre inflammée produit le virus de la blénorrhagie syphilitique."—*Nouveau Traité de la Rage*, p. 673.

[9] His observation on this fact is thus couched:—"The parotid and sublingual glands have been almost invariably affected (i. e. enlarged and inflamed), and frequently the sub-maxillary." To those whose faith is strengthened by the antiquity of an opinion, it may be observed, that the ancients were universally impressed with a belief that the saliva alone contained the morbific virus; and particular families or tribes (the Marii and Psilii, Africans who

have not, before this, put the matter to the test of experiment; and it would have been more satisfactory had M. Trolliet done the same. It is enough, however, for our present purpose, that we know that the saliva is, at least, the principal medium of communication from the sick to the healthy. It has analogical proofs, also, that it is the only one; the blood, the milk[10], and the flesh, have all been proved to be innocuous, while the saliva enjoys a potency which even powerful chemical agents cannot destroy[11]. Among the dissenters to the rabid virus being confined to the salivary secretion, are Drs. Hamilton and Bardsley. These gentlemen entertain a notion that the infection may be received, in a state of vapour, either through the pores of the skin, or by inhalation, or by both[12]. But this doctrine is now discredited, and was never supported by palpable facts.

practised at Rome, were of this kind) enjoyed the privilege of drawing out the poison in these cases by suction with the mouth.—*(Plin. Hist. Nat.* lib. vii.) *Ælianus, Hist. Animal.*, lib. i, chap. 51; *Lucain Pharsal.*, lib. ix, v. 891.

[10] It is a point of great practical interest to ascertain that the milk taken from a cow in the first stage of rabies is not hurtful. The following authorities are to the purpose:—*Nova Acta Nat. Cur.* vol. i, Obs. 55; *Baudot, in Mém. de la Soc. Royale de Méd., an* 1782 *et* 83, t. ii, p. 911.

[11] Dr. Zincke, of Jena, inoculated a dog in the fore legs with rabid salivary virus, and to which belladonna was daily given, but the animal died on the eighth day. Another, who was inoculated with morbid saliva, mixed with a strong solution of arsenic, wholly escaped; while a cat, inoculated with the same saliva, diluted with a tincture of cantharides, became rabid nine days after. A rabbit was inoculated with a mixture of rabid saliva and volatile alkali; it died on the eleventh day. Another, inoculated with virus and human saliva, escaped disease. A dog, inoculated with the same morbid saliva, mixed with a diluted solution of phosphorus, although he became sick on the fifth day, nevertheless escaped infection. A cock, inoculated with the same saliva, mixed with some of the gastric juice of a cat, died on the fourteenth day.

[12] The work of Dr. Hamilton is, as might be expected, elaborate, but theoretical. Dr. Bardsley has united what he supposes proofs with his theory; but as a long experience, among those best fitted to judge of the subject, has never confirmed them, it may be supposed that they owed their origin to other sources. The principal fact on which he grounds his opinion relative to the capability of receiving rabies by means of infected vapour, was gained from Mr. Trevalyan's experiments. This gentleman, after losing almost a pack of hounds by madness, was led to suspect that contagion might lurk in the surrounding materials of his kennel. The litter was carefully destroyed, the

Can the poison make its way into the constitution through the medium of an epithelium, or *mucous surface,* as that of the nostrils, lips, or eyelids[13]? involves an opinion of greater probability, and certainly of equal importance, and is a question on which nega-

benches were scalded, the joints, crevices, &c. were painted, and the walls white-washed; the pavement was also scalded: nevertheless the rabies again appeared. Mr. Trevalyan was now more than ever convinced that some subtle contagion lodged concealed within the apertures of the benches or pavement; the whole was therefore removed, and the edifice was again white-washed and painted, after which no rabies appeared. Puzzling as this appears to one who argues that no contagion can lurk thus unseen, and be generated by inhalation, it may yet be satisfactorily accounted for by another statement, equally true, that fell under my own immediate cognizance. I was requested, in 1821, by Mr. Yates, of Tring Park, to examine two servants, a huntsman and whipper-in, who had been bitten by a hound evidently rabid. I cauterized the wounds many days after the accident, and neither of them felt any future inconvenience from the wounds. Three or four of the hounds had already become rabid in succession, and it was proposed to destroy the remainder; to which I objected, and recommended that a minute examination should be made of them individually every day. Every now and then, however, for months afterwards, an individual was attacked with madness, and, at length, the whole were destroyed, and Mr. Y. procured *a new pack*, which have never become affected, although living in the same kennel, without any precautions having been made use of to prevent latent contagion; which I made it a particular point of ascertaining, having many subsequent opportunities of personal inquiry.

[13] The following authorities lend themselves to the opinion, that a sound mucous surface can receive the contagion:—*Palmerius, de Morbis Contag.; Portal, Obs. sur la Rage*, p. 131; *Matthieu in Mém de la Soc. Royale de Méd.* p. 310, &c. A father, when dying of hydrophobia, *is said* to have imparted a fatal kiss to his infant. On the authority of Dr. Perceval, Dr. Bardsley tells us of a man who, during his sleep on the ground, was licked about the mouth (but not bitten) by an infected dog. He was seized with hydrophobia and died of the disease: but this case, it should be remembered, was always considered questionable. We are also told of a man, who was not known to have been bitten, becoming hydrophobous; but it was afterwards recollected that he had made use of his teeth to untie a knot with which a rabid dog had been hung. On the other hand, it is known that the salivary spume has reached both the eyes and mouth of persons when in attendance on hydrophobous patients. If this were an ordinary source of inoculation, we must naturally meet with the consequences; instead of which, no such case is on record. Neither would the practice of sucking out the rabid virus have been so common among the ancients, as to have become a profession principally confined to certain families, as already noticed. It is also very probable, that, if the disease really have been taken through the means of a mucous surface, it was an abraded one: how often are the lips chapped, and how common is it to have little excoriations in the mouth, or on the nose, eyelids, &c.?

tive and affirmative alleged facts can be ranged in almost equal numbers; it, therefore, will require further time, and still closer observation, to set the matter at rest. Every poison is governed by its own laws; were it otherwise, we might analogically conclude a mucous surface to be open to receive the virus, for such surfaces receive the syphilitic poison. With still less probability, and without any authentic facts to support their theory, some suppose that the surface of the skin throughout is capable of being penetrated with the poison, by the simple application of it to the unabraded surface[14]. A very few only have been led into an opinion that it was possible for the rabid virus to enter the circulation through the medium of matters taken into the stomach.

The activity of the rabid virus; does it remain after death, and how long? is a question not yet solved. Mr. Youatt thinks it ceases with the life of the animal; and it may do so. Nothing, however, but a series of experiments can determine this; and, until then, I should be most unwilling to try it on myself.

Having thus traced the rabid poison from its rise and origin to its insertion into the animal body, let us now proceed to inquire, what are the chances that it will prove baneful; what time usually intervenes between its insertion and active operations; and, when so acting, what are the symptoms it produces, and what its supposed *modus operandi?*

Of the numbers bitten by a rabid animal, many escape without infection.—A variety of circumstances may tend to this favourable issue, among which may be reckoned the intervention of substances between the teeth of the biter and the flesh of the

[14] A fact sufficient to negative the power of the general cuticle to absorb the rabid virus, is my own safety. When the disease was very prevalent, my hands must have been, almost every day, in contact with it. I was become, by habit, entirely fearless of dogs generally, and equally so of those that were rabid. I examined them unhesitatingly; assisted my servants to force their medicines while living; and examined them without precaution when dead: and I may safely assert, therefore, that I have had rabid saliva over my hands more than a hundred times. Mr. Youatt's prosecution of the matter, and his present health, are equally confirmatory instances of its inadmissibility through an unabraded cuticle.

bitten; as the wool of sheep, the thick hair of some dogs, and the clothes of human persons.

The inherent aptitude in different classes of animal bodies to receive it is, also, not the same.—As might be expected, it is greatest in the caninæ, particularly in the dog and wolf; yet it is probable that not one-half of either of these germinate the virus received. The proportions among other quadrupeds we are more in the dark about. Mr. Youatt thinks that the majority of inoculated horses perish, but among cattle he is of opinion the proportion is less. I should, however, myself think, that both enjoy a much greater immunity than dogs; otherwise we should meet with more rabid cases among them in agricultural districts than we do[15]. Human subjects, both constitutionally and fortuitously, are least obnoxious to it[16]. Neither is there room to

[15] Are we not, also, warranted in concluding this aptitude in the cat to be small, from the fact that rabid dogs seek these unfortunates with an instinctive aversion, and great numbers must by these means become bitten? yet a rabid cat is, comparatively, a rare occurrence: but it is to be observed, that when rabies does make its appearance in the cat, it shews itself with much of its phrenetic and mischievous characters.

[16] In the human subject, there is reason to suppose that the interposed dress wipes the saliva from the teeth, and saves many who would be otherwise fatally inoculated: but the *inferior predisposition* in man to receive the contagion, exonerates still more. Out of twenty persons, bitten by one dog, Mr. Hunter informs us (although no prophylacticks were employed), one only became hydrophobous. Dr. Vaughan relates, that between twenty and thirty persons were bitten by another dog, out of which number, also, one only was infected. If it were, however, possible to credit the accounts of the ravages of wolves, we might be led to believe that a superior degree of certainty attended the contagion, even to the human subject, when received from them. Mons. Trolliet relates, that of twenty-three persons bitten by a wolf, thirteen were infected with the disease. In the *Mém. de la Soc. Roy. de Méd.* p. 122, mention is made of two human persons, with many horses and cows, being bitten by a rabid wolf, in September 1772, and that every one of these became affected. Baudot, also, gives an account of no less than forty oxen, cows, horses, dogs, &c., bitten by a mad wolf, in the month of June 1765, the majority of which died. I might multiply these instances, handed down to us by the industry of collators; but the authorities are, in general, so dubious, that they should be received with caution. It, however, may be admitted, that as the wolf usually attacks the face, which is not only uncovered, but, it is probable, is more certainly and more quickly acted on than other parts of the body, so, in this way, greater danger may arise from the rabid wolf than the rabid dog.

doubt that the animal frame, generally, is sometimes less *apt* than at others to receive the contagion, dependent probably on a constitutional idiosyncrasy generated within, or gathered from, the operation of external circumstances, as peculiarity of situation, variations in temperature, qualities in aliment, &c. &c. Not only do facts coincide with this opinion, but it is impossible otherwise to account for the epidemial as well as endemial character which the rabid malady sometimes assumes[17].

The intervening time between the inoculation by the rabid bite and the appearance of the consequent disease, is very variable in all the subjects of it: in the majority of instances, the effects appear in the dog between the third and seventh week. Cases, however, do now and then occur, where they have been protracted to three, four, or even a greater number of months. Although, therefore, caution should not be lost sight of, even after eight weeks have elapsed, yet the danger may be considered as inconsiderable after that time. A week is the shortest period I have met with between the bite and rabid appearances. Mr. Youatt never saw a case with less than seventeen intervening days. In the horse, as far as my own experience goes, the average time is the same with the dog: Mr. Youatt, however, hints at one after four months. In cattle, the probatory period seems much the same as in horses and dogs. In the human it may appear in a month, or be protracted to three or four; and Mr. Henry Earle authenticates a case within his own knowledge, in which the hydrophobic symptoms were delayed until a twelvemonth after the bite. Of the extraordinary instances we read of, which have

[17] I have before hinted, that accidental circumstances may hasten the attack, particularly as would appear by *excitements of the vascular system.* Thus it follows extraordinary exercise; and the œstrum or heat of bitches will rouse the dormant poison into action. The *certainty* of the attack is also, I believe, greatly *increased*, as well as *hastened*, according to the part bitten. I have very seldom known any animal escape which was bitten in the head or face; and I have, in almost every instance, observed less time to intervene in these cases than in such as were bitten elsewhere; and the same has been noticed by others also.

been protracted to five, twelve, and even nineteen years, I do not believe one.

Symptoms of Rabies.

I shall now proceed to describe the *pathognomonic* and *occasional* indications of the rabid malady, premising that the varieties in both, but particularly in the latter, are so numerous, that hardly any two cases present themselves under a directly similar aspect[18]. It is however certain, that, by the aid of the pathognomonic symptoms, the disease may be commonly detected without fear of mistake. The extent of the former, and the necessity for a distinct notice of all the varieties of the latter, render a perspicuous account of the malady extremely difficult, and necessarily extend it beyond the limits of a summary.

Rabies sometimes commences with dulness, at others with a more than usual watchfulness, and restlessness: it is often ushered in by some peculiarity of manner, some departure from the ordinary habits of the animal, or by the introduction of new ones. In many instances, but more particularly in the smaller and closely domesticated kinds of dogs, this peculiarity consists in a disposi-

[18] I have great reason to think that much of the discrepancy we meet with in the various accounts that appear relative to rabies, arises from the confined field of observation from whence they are drawn. One enters on a detail of it as it has appeared in one or two individual cases that accidentally fell under his notice; another describes it as it is found to exist among hounds, pointers, or other large dogs only; and a third draws a portrait of it as it shewed itself among the smaller and confined breeds kept about the person; and yet each (not considering that original character and habit stamp a still further variety on a disease already sufficiently variable) expects all future cases exactly to coincide with his own statement, or that they should fully bear him out in his own views of the subject. In the larger breeds of dogs, and particularly in kennelled ones, as hounds, &c., where close domestication has not wholly reclaimed their native ferocity, rabies may, and indeed does, shew itself with much of that wildness and mischievous character that has gained it the name of *madness*. The rabies of the wolf and fox, although close congeners of the dog, and that likewise of the half-reclaimed cat, is always stamped with a ferocity and malignance of character that is foreign to what usually occurs in the smaller and more domesticated breeds; in which cultivation has wrought such an entire change of their nature, that even their symptomatic appearances under disease are, in a great degree, altered by it.

tion to pick up straws, thread, paper, or other small objects[19] In others, the first symptom noticed, is an eager and unceasing attempt to lick the anus or parts of generation of another dog[20]. The lapping of their own urine is a common and early symptom of madness, and one that should be particularly inquired for; as, when found to exist, I know of none that should be regarded as more strongly characteristic of rabies, and of no other complaint. Some shew an early disposition to lick every thing cold about them, as iron, stone, &c. These, and other peculiarities, often appear in lap-dogs, and others that are under immediate observation, one, two, or even three days before the more decisive and active symptoms. The eyes, even in this early stage, if observed attentively, will often be found rather more bright, lively, and red than usual; and are then accompanied with a certain quickness and irritability of manner[21]. In other cases, the eyes are less vivid; and, more particularly, when the disease is to assume the mild form, called dumb madness, they often present a dull aspect, and a purulent discharge from the inner angles; occasionally the nose also throws out pus. The salivary discharge is often increased early in the complaint, and so continues: in other cases, a parched dry tongue is seen, with insatiable thirst. The purulent discharge has occasioned the disease to be mistaken for distemper. Much stress is laid on a sullen manner, and a disposi-

[19] I have repeatedly seen dogs, which, before they became at all suspected of madness, had for a day or two industriously employed themselves in this way, so that not the smallest loose object of any kind remained on the floor, to the no small surprise of the owners.

[20] In one instance, I foretold the approach of the disease by the uncommon attachment of a pug puppy to a kitten, which he was continually licking; as he also did the cold nose of another pug that was with him: and Deane, Earl Fitzwilliam's huntsman, observes, that among his hounds, he regards the smelling and licking of the penis and fundament of another as a most suspicious symptom. It is a curious circumstance, that sexual excitement is frequently an early symptom in all the subjects of rabies. It has been seen in the human; and rabid sheep are usually observed to first shew the disease by riding their fellows.

[21] Mr. Youatt expresses this alteration in the eyes as being of a peculiarly bright and dazzling kind, accompanied by a slight strabismus; not the protrusion of the membrana nictitans, as in distemper, but an actual distortion from the natural axis of the eye.

tion to hide or retreat from observation, as early characteristics of madness; and these appearances are certainly not unusual in hounds and kennelled dogs, but they are less frequently observed in the petted kinds: this, however, will greatly depend on the general character of the dog at all times. Costiveness is not uncommon in the incipient stage; in the latter it is still more frequent. An early sickness and vomiting often appear, but although ineffectual retchings may continue, actual vomition does not often accompany the complaint through its progress; the peculiarity of the inflammation in the stomach rather tends to retain the ingesta within it. Indeed, this circumstance forms one of the strongest criteria of the existence of the disease, as will be hereafter noticed.

A continual *licking*, or violent *scratching* of some particular part of the body, is by no means an uncommon symptom; and a close examination of the part will frequently detect a scar, or the remains of the wound by which the poison was received; and when the former wound cannot be ascertained in this way, if a true history of the case can be gained, it will always be found that the inoculation was received on the part so scratched or licked; for I have reason to believe that this morbid sympathy in the bitten part exists more or less in every case[1]. The appetite is by no means always affected in either early or continued rabies; on the contrary, food is not only eaten, but digested also, during the first stages; and some will eat almost to the last, but with them the food is seldom digested. That no disinclination to liquids exists, will be readily acknowledged by all who observe the disease with only common attention: from the first to the last, *no aversion to water is ever observed.* In the early stages, liquids are taken as usual, and some continue to take them so throughout

[1] I have seen a dog which had been known to have been bitten in the foot, some weeks afterwards begin to lick the part, at first gently, then violently, incessantly whining over it, as though distressed with the sensation produced, until, at last, he has proceeded actually to gnaw it. I have witnessed the same on other parts, as the lips and ears, which have been rubbed or scratched with anxious perseverance from the beginning to nearly the end of the complaint, when the rabid bites have been received there.

the complaint; others cannot, from a swelling and paralysis of the parts of deglutition, readily swallow them in the advanced stages; but, in such, no spasm is occasioned by the attempt, nor does it cause pain or dread: on the contrary, from the thirst brought on by the symptomatic fever present, water is sought for, and, in most cases, an extreme eagerness is expressed for it[2].

[2] It is imperative on me to press this point particularly, as will be seen below. Mr. Youatt also expressly says in his pamphlet, p. 3, "There is no dread of water; no spasm attending the effort to swallow; but a most extraordinary and unquenchable thirst." Mr. Meynell remarks, that mad dogs have no abhorrence or dread of water; and that they will eagerly lap it even the day before their death. He also notices the paralysis that often renders their attempts to drink abortive. John Hunter, who was not accustomed to state facts without examination, says, that "mad dogs can swallow solids and liquids through the whole disease." *Trans. of a Society for the Improvement of Medical Knowledge*, p. 296. Dr. Hamilton also has, "A rabid dog never avoids water, and laps whatever liquid food is set before him, long after the poison can be communicated by his bite."—*Remarks on Hydrophobia*, vol. i, p. 12-16. "Cette chienne, avoit *bu* et mangé après avoir mordu."—*Journal de Médecine*, vol. xxxix. "Le loup mangeoit tranquillement une chèvre, et celui de Fréjus traversa plusieurs fois de grandes rivières à la nage."—*Voy. d'Arluc, Recueil Periodique*, vol. iv. "Il est donc dangereux de concleur de ce qu'un animal *boit* et mange et *traverse une rivière*, qu'il n'est point atteint de la rage."—*Trolliet, Nov. Trait. de la Rage*, p. 276.

It is incalculable the mischief that this sad but too common prejudice has produced; it has rendered thousands of persons miserable for months and years even, while others it has lulled into a fatal security. Should a dog, from an affection of any kind soever, be prevented from swallowing, he is immediately pronounced mad, and is unreluctantly destroyed; while dread probably remains in the mind of every one who has even been within his reach. An unfortunate person, who may have been bitten by this same dog, for months or even years before, is not exempt from the panic; for, among other popular errors that are current, is, that if a dog becomes mad, any person, who may have been formerly bitten by the animal, is equally in danger, as though it had happened when the animal was really affected. On the other hand, if a sick dog can drink, he is pronounced free from all danger of madness; and so universal has this opinion been, that Dr. H., an eminent physician now in very extensive practice in the western part of London, on being consulted by a person actually bitten by a rabid dog, immediately inquired whether the dog by which he had been wounded could drink; and, on being informed that he could drink, he peremptorily pronounced that *the dog could not be mad;* and proceeded to recommend that *no precautions whatever* should be made use of. This gentleman was guilty of a piece of professional presumption and ignorance unworthy of his rank and situation; and his advice, had it been followed, might have caused the death of three persons. Fortunately for them, his opinion was not attended to, and I dissected

The experience of more than twenty years, many of which were passed in the midst of its most frightful visitations, I again repeat did not produce one instance where any thing like a dread of water was manifested, or any where spasm followed the attempts to take it.

I have already hinted at an early and marked *alteration of the temper of the animal,* as common; something of it may be seen in almost all cases. I say almost, because occasionally, and particularly in the dumb variety of the disease, it is altogether wanting; and which phenomena is most common in the lap-dog breeds, and particularly in pugs. The *degree* of irritability varies much, according to the variety of the disease, it being greatest in acute rabies: it is likewise much influenced by the general character and kind of the dog—one naturally ferocious is therefore rendered more so by it; and as might be expected, the fighting breeds usually have it strongly marked, particularly all sporting terriers. In hounds, setters, pointers, &c., the degree of mischievous excitement is regulated greatly by the general temper of the dog, and whether it be the dumb or raging kind of the disease. As a general principle, it appears with little ferocity in all dogs in a state of close domestication, and more particularly so towards those to whom the dog has been accustomed to yield obedience. This, however, like all the other symptoms, is liable to variations; but, generally, these remarks will be found to apply. The *change of temper* in its early stages consists rather of a pettish irritability

the wounded parts out of each of them. In five weeks, an unfortunate spaniel, who had been bitten by this same dog, became rabid; and in six weeks a horse, bitten by him, became so likewise. Dr. Gilman relates a case of hydrophobia where a fatal insecurity had been indulged in, from the circumstance that the dog both ate and drank during his complaint. Mr. Youatt had a dog brought to him which was unquestionably rabid. The owner, a poor woman, had her hands excoriated by a breaking out, and these hands the dog had repeatedly licked during his illness. On Mr. Youatt's intimation that it was necessary she should use some precaution, she applied to a medical gentleman, who assured her, that if the dog attempted to drink he was not mad, and no precautions were necessary. This opinion was likewise confirmed by another person who pretends to some veterinary knowledge: fortunately for her, Mr. Youatt undeceived her, and, I believe, applied the preventive.

than one of settled mischievous intention; but, with few exceptions, a *marked impatience of restraint* is manifested. The first offensive symptoms are often directed towards cats, while dogs remain unmolested: next, however, dogs, particularly strange ones, are attacked, but those they are habituated to are still safe; and as the complaint gains ground, even these are not spared.—We will now further pursue the disease under its two leading varieties, which distinctions are founded principally on the circumstance, of whether it spends its violence on the respiratory or on the digestive systems of organs: previously, however, observing, that this distinction is rather made in obedience to popular and long received opinion, which has recognized canine madness as of two kinds, one *raging*, and the other *dumb, than to any specific difference* between them: on the contrary, when the attack is equally diffused throughout the system, the symptoms of these two states are so blended, as to afford little room for nosological distinction; and the less, as each variety begets either the one or the other indiscriminately. Nevertheless, as the attack on the organs is rather partial than general, in the majority of cases, so it may not be inconvenient to follow the popular distinctions.

Acute or Raging Rabies.

Acute Rabies, or *Raging Madness*[3], as it is called, is that state of increased excitement and irritability which begins to shew itself immediately *after*, and occasionally only with the early symptoms. Sometimes these precursors are passed over unnoticed, and it is therefore supposed that the animal is at once attacked with the appearances that follow. It is, however, very seldom that such is really the case, by which the danger from

[3] It is a curious fact, but it is no less true than curious, that the rabies of very young dogs, as I have seen it, has always been of this kind. I never saw a rabid puppy that did not exhibit marks of considerable delirium and much mischievous tendency towards every living being, indiscriminately. That affection of the throat, and tumefaction of the parts of deglutition, producing *dumb madness*, I never met with in any but an adult dog.

madness is much lessened. The acute or raging kind is distinguished by a general quickness of manner, sudden startings, great watchfulness, and a disposition to be acted on by sudden impressions, as noises, the appearance of a stranger, &c. This watchfulness, however, often yields to a momentary stupor, and inclination to doze, from which the dog will start up, and fix his eyes stedfastly on some object, probably on one not usually noticed, and often on one altogether imaginary; at which he will attempt to fly. In this stage the breathing is often hurried; sometimes the panting is excessive, and, where the pulse can be examined, it is invariably found rapid and sometimes hard. The irritability in these cases is marked by extreme impatience of controul; and even when no aptitude to attack or act offensively towards those around may appear, yet a great disposition to resist any slight offence offered, commonly shews itself. A stick held to such a dog is sure to excite his anger, even from those he is most attached to, and he will seize and shake it with violence: the same will occur if either the hand or foot be held out, but, unless in a very great state of excitement, these he will rather mumble than tear, if belonging to those he is acquainted with. This disposition to become irritated on the slightest shew of offence, as flying at a stick, is a very marked feature of rabies, and should be very particularly attended to, and the more, as it usually is present in both varieties of the malady; unless when paralysis has blunted the capability of excitement. A peculiar suspicion marks these particular cases, and a degree of treachery also, by which, in the midst of caresses apparently received with pleasure, the dog will at once turn and snap at those noticing him: he will, perhaps, readily come when he is called, and with every mark of tractability will wag his tail and seem pleased, but on a sudden he will seem to receive a counter impression, and hastily bite the person who called him. This stage is often marked, in large and naturally fierce dogs, with an utter fearlessness of danger, and contempt of every menace: every restraint is most unwillingly submitted to; the miserable brute shakes his

chain with extreme violence, and, when confined without one, he will attempt by every means to escape, and will force or gnaw his way out of his confinement, in a most surprising manner. The vessels that are placed before him he overturns or breaks with mischievous alertness.

A disposition to rove accompanies each variety of rabies; but as, in the dumb kinds, the paralysis, stupor, and prostration of strength, are hindrances to it, so it is more particularly apparent in the acute kind. This inclination does not usually shew itself by an attempt to escape altogether, neither does it appear a delirious affection; on the contrary, much method is displayed in it, which makes it rather seem an instinctive disposition common to all, *to propagate the disease*. In its early stages, before the strength is much impaired, dogs will travel immense distances under this impulse: such a one trots along, and industriously looks out for every other dog within his reach or sight. Whenever he discovers one, little or large, he first smells to him, in the usual way of dogs, and then immediately falls on him, generally giving him one shake only; after which, he commonly sets off again in search of another object. The quickness with which this attack is made very frequently surprises the bitten dog so much, as to prevent his immediately resenting it: but nothing is more erroneous than the supposition, that a healthy dog instinctively knows a rabid or mad one. I have watched these attacks in numerous cases, and I have seen the mad dog tumbled over and over, without the least hesitation, by others that he had himself fallen on.

During this march of mischief, rabid dogs but seldom, however, turn out of the way to bite human passengers: neither do they so often attack horses, or other animals, as their own species. Sometimes they will not go out of their line of travel to attack these even; but, trotting leisurely along, will bite only those which fall immediately in their way. In other cases, however, where the natural habit is irritable and ferocious, and where dogs may have been used to worry other animals, as guard-dogs, farmers'

dogs, terriers, &c., a disposition to general attack is sometimes apparent; and by such, horses, cows, sheep, pigs, and even human persons, are all indiscriminately bitten. When such a dog has roved about for an indeterminate period, as ten or even twenty hours, he will return home quietly, if not discovered and destroyed in his progress[4].

The affection of the larynx produces an invariable alteration in the voice, and a very marked one it usually is. A few are altogether mute, from engorgement of the parts. The sounds emitted of themselves form a strong characteristic of the complaint. In the irritable variety, the alteration is first observed by a more quick and hasty method of barking, with some difference also in the usual tones of the bark; by degrees, an occasional howl either follows the bark, or takes place of it altogether[5]. This howl, which is common to both varieties of the complaint, in the dumb kind has a choaking hoarseness with it: the whole however is of so peculiar a kind, that it may be said never to be heard under any other circumstance than from a rabid dog[6].

[4] In cities and large towns this return after a march of mischief is sufficiently common; but in the country it is different, and, therefore, this peculiarity has not an opportunity to shew itself; for there the unfortunate animal is soon detected by his manner, and is immediately hunted. If not overtaken, he is too much alarmed to return soon; and, before he has time to recover his fright, he is discovered in some other situation, and falls a sacrifice to the anger of his pursuers. The very hunting will, of course, do to him what it would to any other dog; it will beget fury: otherwise there would very seldom be much ferocity apparent, and, in most instances, such a dog would return home when thoroughly tired.

[5] It is evident, that it is not easy to form a written description of any peculiarity of voice, but the rabid howl may not unaptly be resembled to the tones produced by what is called, among sportsmen, the *giving tongue* of the old heavy southern harrier. It appears composed of something between a bark and a howl, being made up of tones longer than the one and shorter than the other, and always with the head thrown up; and is usually single and repeated at uncertain intervals only, and is altogether so peculiar, that, when once heard, it can never be forgotten; and so characteristic, that it may be, I may say, implicitly relied on. I have, in several instances, been attracted to houses where dogs have been confined by the sound alone, in time to warn the inhabitants of their danger.

[6] Boerhaave seems to have this howl in view, when he says, "muti quoad latratum, murmurantes tamen."

The Taciturn Rabies.

Dumb madness forms the other and most frequent variety in adult dogs, and which cases appear dependent on a less degree of active sensorial excitement, but with greater morbid affection of the bowels. The symptoms which succeed to the premonitory ones, are often rapid; and superadded to the dull, heavy, and distressed countenance, costiveness, &c., there appears a stiffness about the jaws, and a hollow sound is emitted in breathing which is rather performed by the mouth than the nose, that being plugged up with pus, or the arch of communication being straightened by tumefaction. As the whole of the pharynx and larynx becomes tumefied to the full extent, the muscles at the base of the tongue, and those of the lower jaw, are rendered inert; the mouth remains open, and the tongue hangs pendulous without it; and sometimes an actual inability to wholly close the jaws takes place altogether. A congestion of blood is the necessary consequence of the distention of the parts, and the tongue from this cause usually appears, in these cases, livid or almost black, particularly towards its apex or point: frequently a black line extends through its whole length. This state of the parts occasions often a difficulty, sometimes a total inability even, to swallow either liquids or solids. In general, however, the inability is principally confined to liquids, which are, in such instances, returned as fast as they are lapped, from the incapacity of the tongue to carry it into the pharynx; but in no instance, as already insisted on, do the attempts to swallow appear to excite apprehension or give pain. The mouth itself is mostly parched and dry; occasionally it is moist, with saliva continually flowing from it[7]. It is the tumefaction of the pharynx that produces the deep choaking noise already noticed, and which seems to issue from the bottom of the glottis: all the ordinary

[7] In most cases an increased salivary flow arises at some period of the complaint, which is not frequently lasting, but is succeeded by a viscid bronchial secretion, that appears to irritate the dog beyond endurance; and to remove which, he often employs himself with the utmost violence, by forcing his paws against his mouth, as dogs do when a bone is lodged between the teeth.

symptoms spring from this specific laryngitis and bronchitis, by which these parts are tumefied even to paralysis, yet are totally without any of the human spasmodic rigors. It is however far otherwise with the external muscular tissues: the cutaneous muscles become often first affected, twitchings pass over the face, and afterwards the spasmodic and paralytic affection often extends also to all the organs of locomotion: in others, however, it is principally confined to the loins and hinder extremities. When the morbid affection acts very strongly on the bowels, it often occasions the hinder parts to be drawn forward by a species of tetanic spasm toward the fore parts, so as to bend the poor sufferer into a circle; sometimes it fixes the animal on his rump, almost upright.

A symptom common to this variety, and not uncommon in the other also, is a disposition to carry straw, litter, or other matters, about in the mouth, which the dog seems to make a bed of, frequently altering it, pulling it to pieces and again remaking it. It is also very common to observe dogs scratch their litter under them with their fore feet, not as when making their beds, but evidently to press the straw or litter to the belly. This peculiarity appears to arise from some particular sympathy with the intestines, which, in these cases, are always after death observed to be very highly inflamed. There is also present a disposition to pick up and to swallow, when not prevented by the affection of the throat, indigestible and unnatural substances, selected from whatever is around them, and which the costiveness usually present tends to retain within the body. It appears to be this impulse, likewise, that leads rabid dogs to gnaw boards, or whatever is within their reach; and this aptitude may be considered as common to every variety of the complaint, except, as already observed, where the tumefaction and paralysis of the throat are so extreme as altogether to prevent it.

The *irritability attendant on dumb madness* is even subject to more variation than in that called the raging. It is sometimes considerable, and exhibits all the treacherous and mischievous

disposition that marks the other; but when the dumb character is strongly marked, there is then seldom either much irritability or delirium apparent; on the contrary, in many instances, a most peaceable disposition is manifest, and which does not appear dependent on the inability to bite, but really from a total want of inclination to it. Indeed, in many cases of this kind, the tractability of character and mildness of disposition have appeared to be even increased by the disease, and that to a degree that will not permit strangers to suppose it possible for rabies to be present. It would sensibly affect any one, to witness the earnest imploring look I have often seen from the unhappy sufferers under this dreadful malady. The strongest attachment has been manifested to those around during their utmost sufferings; and the parched tongue, as I have before noticed, has been carried over the hands and feet of those who noticed them, with more than usual fondness. This disposition has continued to the last moment of life, in many cases, without one manifestation of any inclination to bite, or to do the smallest harm. I have observed this particularly in pugs, and it has not been uncommon also in other lap-dogs.

The progress of the disease in its latter stages is marked by increased paralysis, and it often happens, as it extends over the body, that of the jaws lessens: the wretched animal now reels about with little consciousness; tumbles and gets up again; now seats himself folded on his rump, and in this posture life is stolen away often without a struggle. The fatal termination ranges between the third and seventh days; few die sooner than the third day, and very few survive longer than the seventh: the average number die on the fourth and fifth. In man, it has destroyed at the end of twenty-four hours; few have lasted beyond the third day: by repeated bleedings, however, a case which is related in *The Lancet* of July 12th, was protracted to the fourteenth day. Horses do not survive beyond the third or fourth; the ox and sheep, Mr. Youatt says, from five to seven days; but a rabid sheep, the property of Mr. Adam, of Mount

Nod, Streatham, died on the third; and I have a recollection of one or two others which did not survive longer.

What other canine diseases may by possibility be confounded with rabies?— The importance of the subject makes such an inquiry necessary; but it must be prosecuted in a note below[8];

[8] Thousands of innocent dogs have been sacrificed to mistaking this disease for some other; and thousands of persons have been rendered miserable in their minds by needless fears from the same errors. I know not the numbers of epileptic dogs which have been killed under a supposition of their being rabid; and on the other hand, not unfrequently dogs réally rabid have been fondled, and had remedies administered to them, at great personal risk, from a supposition that they laboured under some other complaint. *Epileptic fits*, whether occasional or the consequence of distemper, are often mistaken for rabies: but it should be remembered, that there is no rabid symptom whatever that at all resembles a fit, whether in the irritable or in the dumb variety. An epileptic fit is sudden; it completely bewilders the dog, and after a determinate period leaves him perfectly sensible, and not at all irritable, but exactly as he was before: in rabies there is *no fit*, no loss of recollection, no tumbling about wildly in convulsion; neither is there any marked break in the natural irritability attendant on rabies. If a dog in an epileptic fit should be so convulsed as to attempt to bite, it is evidently done without design; his attack is spasmodic, and pain may make him seize any thing, and it is quite as likely to be himself as any thing beside. The irritability and mischievous attempts of the rabid dog have always method with them, and they evidently result from a mental purpose to do evil. The mad dog has usually a disposition to rove, the distempered one never. A puppy in distemper, particularly if he have worms, may pick up stones, or eat coals, or he may in a trifling degree take unusual matters as food; yet no dog but a rabid one will take in hay, or wood, or rag, or will distend his stomach almost to bursting. The discharge from the nose and eyes which sometimes occurs in rabies, I have often seen mistaken for distemper, and that even by veterinary surgeons: it is, indeed, the most deceitful of all the appearances which occur, particularly where it continues for some time, as is occasionally the case. Usually, however, it is the permanent attendant on distemper, and a temporary one only of rabies: while the previous emaciation, cough, and gradual increase of the flow, from thin and watery to muco-purulent, and then to pus, are distinguishing symptoms of distemper. *A tetanic attack* has been mistaken for rabies; but the extreme rarity of this disease renders such error not of very likely occurrence, and the medical attendant will never be deceived: rigid convulsions may contort the frame, and close the mouth; but there is no other likeness to rabies present, and the dog is as incapable as he is disinclined to do mischief in any way: the death of the tetanic dog will also, by internal inspection of the body, at once distinguish between these diseases, as in tetanus there are few marks of visceral disturbance. *Spasmodic colic* will contort the dog, and may sometimes make him irritable and disposed to bite, if he be disturbed; but he will never attempt it purposely: on the contrary, he will rather avoid all intercourse with living

it being desirable that the thread of the detail should be uninterrupted and uniform in the text.

Post-mortem Appearances.

The morbid anatomy of the rabid dog forms a most important feature in a portrait of the malady, but is one that was long neglected. It by no means unfrequently happens, that it is not until after a dog is dead that he is suspected of having been rabid, although he may have bitten one or more persons. Under such circumstances, it is evident that it is of the utmost consequence to be able to decide, from an inspection of the dead body alone, whether the disease did or did not exist. Fortunately the *morbid appearances* peculiar to these cases are usually so *marked,* and so *prevalent,* that a just decision is seldom difficult to form, even from them alone.

On a careful examination of the *head,* the brain and its membranes will be usually found to have suffered more or less from the attack. Sometimes the general vascularity is only slightly increased, but, in most, the vessels of the pia mater will be found distended with blood, and usually in the degree of excitement exhibited, but in no instance have I observed the membranes thickened, as in idiopathic phrenitis. The inflammatory appearances within the cerebral cavity are usually less considerable in those cases called dumb madness. As might be expected, the spinal brain, or spinal marrow, as it is called, usually partici-

beings. Colic also, particularly that occasioned by taking lead internally, produces excruciating pains not present in rabies, which pains also remit and return at uncertain intervals: again, although plaintive moans may be heard in spasmodic colic, barking or howling is always absent; neither are the jaws paralyzed: active purging also relieves this, but is totally inert in the other. Lastly, the mistakes likely to occur between rabies and other diseases are, in some degree, attributable to erroneous pictures drawn by authors of such diseases: thus, Dr. Jenner's account of the distemper, instead of deserving the praise his great name has drawn down upon it, is entirely calculated to mislead: indeed, it might be supposed by his readers, that he was purposely describing rabies and not distemper.—See *Medico-Chirurg. Trans.* vol. i, p. 263. I could produce many similar instances in other authors.

pates with the cerebral affection: sometimes the morbid marks are greater here than in the brain itself. The membranes of it are often highly injected[9], the canal likewise is suffused with fluid, and the nervous column itself presents diseased appearances.—*Journal Universel des Sciences Médicales*, tom. 65, 134e *cahier*.

Much of the general tumefaction which existed during life about the back of the mouth, disappears on the collapse of death, but it commonly leaves the base of the tongue and the sublingual glands enlarged and injected as well. Mr. Youatt has often, he observes, found the parotid and submaxillary glands gorged also. As regards the tongue, not only its base generally remains tumefied, but its papillæ are particularly enlarged, as also the mucous glands of the under surfaces, which have been the subject of critical examination of late years; and which Mr. Youatt, with much probability, thinks have been mistaken by Marochetti and others for his famed *pustules*. It is also important to be aware, that whether a dog has been wormed, or not wormed, no difference whatever is found in the appearance of the under surface of the tongue: if the frænulum is present, that portion is not in any degree particularly swollen or red; and if it have been extracted, the general appearances are exactly the same. This will be further pursued under the head Worming of Dogs; but it is of much consequence, that this invariable similarity in morbid appearance between the wormed and the unwormed dog, be especially noted. The colour of the tongue betrays the intensity of the inflammation which has pervaded it, varying from a dark red to a deep purple; a yellow central line sometimes presenting, and occasionally bounding its edges. The fauces and tonsils never

[9] "L'encéphale offrait une injection sensible du réseau vasculaire qui le forme en partie; l'arachnoide était aussi fortement injectée; les hémisphères cérébraux présentaient à leur surface un épanchement de sang assez considérable; à la coupe, ils laissaient transsuder des gouttelettes de sang. Les membranes de la colonne vertébrale étaient enflammées dans divers points et notamment vers les vertèbres dorsales, où la moelle, dans un état d'affaissement appréciable, était-irritée par suite d'une violente percussion qui avait occasionné aussi un épanchement récent d'une demi-cuillerée de sang."

escape the inflammatory attack, and the insatiable thirst that is generally found present may be attributed to the want of the lubricating mucus usually secreted by it.

The whole extent of the pharyngeal and laryngeal cavities is mostly beset with discoloured spots; but a distinct inflammatory patch about the angle of the larynx, at the back of the epiglottis, is so invariably present, as to deserve the character of one of the criteria of the disease. The epiglottis and rima glottis are also commonly enveloped with an inflammatory tinge, which, now and then, extends a little way within the trachea, but less frequently is the œsophagus affected with it. Proceeding onwards, we invariably meet with an extension of the morbid inflammation to the thoracic and abdominal viscera: but by no means are these cavities always affected in an equal degree; on the contrary, in those instances where there has been a greater tendency to the raging variety, the thoracic viscera are usually more diseased than the bowels or stomach. Not only are the lungs themselves, in these cases, found highly inflamed, but the costal pleura and diaphragm are affected also. Sometimes one thoracic cavity is found more highly congested than the other; and, now and then, the mediastinum, pericardium, and even the heart itself, in cases of great rabid intensity, are found so likewise.

When the *abdominal viscera* are examined, they almost invariably present marks of a full share of the morbid affection. If the dog has been destroyed early in the disease, these may not be very considerable, and an occasional case may occur where the appearances are not very strong, even when the animal is suffered to remain until death; but such instances are rare.

In the stomach inflammatory marks are very seldom wanting; and turning our attention to a rabid one, we are often first struck with its appearance of distention, and on opening it, the cause is seen to arise from an accumulation of a considerable, oftentimes of an immense, mass, of indigestible substances, as hay, straw, wood, coals, or, in fact, of any surrounding substance which has proved small enough for deglutition. This disposition to take in

unusual ingesta exists in every variety of the complaint; and as sickness and vomiting, though common in its early stages, are but seldom to be found during the latter periods of it, so the substances taken in being of an indigestible nature, necessarily remain within the stomach until death. There is little reason to doubt that a morbid sympathy in this organ is the occasion of this peculiarity, and that the presence of these hard bodies gives some relief, probably by the distention they occasion. Certain it is, that the appearance of this indigestible and incongruous matter within the stomach is so common, that it becomes a pathognomonic sign of the utmost importance, and it should be searched for in every case where doubt exists[10].

When the stomach is emptied, it usually presents marks of very intense inflammation. If the dog has been destroyed very early in the complaint, the inflammatory markings may not be very considerable, but, in every such instance even, which has

[10] In describing the criteria of the disease, I have purposely omitted before enlarging on this particular, that I might here do it more fully, and that I might at once describe both the cause and effect: I must now therefore remark, that, of all the characteristic marks of the complaint, I consider this as the most genuine, and as the one liable to the least variation. I will not say that I never saw a rabid stomach, after death, without this *crude indigestible mass;* but, during the examination of more than two hundred cases, I do not recollect to have met with but very few indeed in which there has not been either this, or a chocolate-coloured fluid: and when these indigesta are not present, on inquiry it will still be often found that such have been vomited up. This genuine characteristic cannot, therefore, be too strongly kept in mind, because it is one that may be sought for by one person as well as another, by the most uninformed, and by the amateur, as well as the professional man. It is also more important, because it may be found long after death, when the other marks have become blended in the universal decomposition and decay of the body. I cannot exemplify this better, than by relating a circumstance of my being sent for, to a considerable distance in the country, to examine a suspected dog, who had been already buried three weeks, but was now dug up for my inspection. All other marks to be gained from the morbid anatomy had, of course, disappeared; and I must have been left in doubt (for the dog had come some distance, had bitten a child who was caressing him, and had been in consequence killed on the spot; nothing, therefore, of his history was known), had it not been for this unfailing criterion, which I found to exist, in this instance, in its full force, and from which I was led, without fear of error, to decide that the dog had been rabid.

fallen under my notice, in some degree or other, they have still been present; while, in those cases where the animals had been suffered to die of the disease, I never remember one in which the morbid appearances were not considerable. The inner surface, or rugous coat, is often livid, and not unfrequently sprinkled over with pustular prominences: it is not unusual, likewise, for it to exhibit sphacelated ulcerous patches. I have seen it actually perforated by the mortification present. The outer surface is seldom wholly free from inflammatory marks either, particularly along the great curvature; and such is the intensity of the inflammation, that I have seen blood extravasated between the membranous and muscular coats. There are seldom many fluid contents present,—the mass of ingesta usually absorbs what may be there; but when any such are found, they invariably consist of a dark-coloured liquor, not unlike coffee grounds.

The *intestinal tube* is often found with strong marks of disease also; but the frequency of these is not equal to the stomachic affection. It is seldom continuous, but rather in contiguous patches, principally affecting sometimes one and sometimes another of the intestines. The villous surface is frequently gangrenous, and the outer or peritoneal portion, from the coagulable lymph thrown out, is often found adhering to other portions. Sometimes intussusception exists, but constrictions and twistings are still more frequently present. Occasionally, the tube is altogether empty, but it is more frequently found partially distended with hardened fæces, and not unfrequently with worms. The degree of inflammation between the stomach and intestines is not always correspondent; on the contrary, when the one has been very highly inflamed, it has not been unusual to find the other less so, but variations in the state of the stomach are less frequent than those in the bowels. I have usually found, when the appearances of this symptomatic enteritis have been intense, that such cases, during life, had exhibited torpor, distress of countenance, affection of the parts of deglutition, great scratching of straw to the belly, paralysis, and all those characteristics more immediately

appertaining to what is called, by sportsmen, dumb madness. On the contrary, when the intestines have been but little inflamed, and the stomach likewise not intensely affected either, but the lungs extremely so; such cases, during life, have been characterized by great irritability, a desire to rove, and those appearances common to raging madness. Mr. Youatt seems not to have met with many cases of very intense intestinal affection: but when I was familiar with it some years ago, the bowels sometimes exhibited the principal share of inflammatory violence. Several notices of this kind, made on the intestinal morbid marks, are now before me. One dated 1812, states, that a dog, the property of the Duke of Sussex, which I was requested to see, gave unequivocal signs of rabies, of which he died. When opened, the stomach was but little inflamed, but the intestinal tube throughout, particularly the stomachic half, was gangrenous, and exhibited intussusception in various parts. Great marks of intestinal inflammation are noticed by Dr. Gilman, and by many of the French writers who have given the post-mortem examination. The remaining abdominal viscera are often found to participate in the affection. The mesentery is sometimes seen clotted with grumous spots, and adhesions are formed between the parts from the coagulable lymph thrown out. The liver, pancreas, spleen, and omentum, but particularly the former, are often inflamed. The kidneys usually escape, neither is the bladder in general attacked, but the urine contained is often deeply tinged with bile from the hepatic affection.

The bodies of those dogs, who die of this disease, soon become putrid; but there is no peculiarity of smell attending them: neither are they so offensive as I have often witnessed them in other cases of inflamed bowels, particularly of that kind produced by mineral poisons. I have frequently offered to a healthy dog various parts of the body of rabid dogs, but I could never distinguish any marks of dread or disgust; I am, therefore, convinced that, living or dead, there is nothing in the smell that

characterizes rabies from one to the other, as has been so often alleged, among the other vulgar errors held forth.

Inquiry into the Morbid Action of the Rabid Virus.

Having already endeavoured to shew that the rabid poison is only received into the system by the actual insertion of it by means of an abraded surface, it will now be our endeavour to inquire its *modus operandi* when received there. This subject has occasioned a diversity of opinions; one of which is, that the rabid virus is at once mixed with the blood by the absorption of the lymphatic vessels, and that it afterwards exerts its morbid agency principally on the nervous system, and on other parts sympathetically. I long entertained an opinion that the rabid poison entered the circulation as soon, probably, as it was received, exactly in the same manner with the poisons of venomous reptiles and other morbillæ. Some sympathy, however, seems to be kept up with the bitten part, without the agency of which the virus can never germinate into fatal action. The wound, therefore, when first received, not being under the *immediate* action of the morbid matter, heals as other common wounds; but, after an uncertain period, a *secondary* and lymphatic inflammation arises within the part, a new morbid compound is formed, and all the symptomatic appearances which follow are derived from the absorption of this newly generated poison. The most popular opinion, however, of the day is, that which considers the virus received, as remaining stationary within the wounded part[11] until

[11] It remains perfectly undecomposed. The absorbents are actively at work in removing every thing around. The capillary vessels are depositing fresh matter; but it seems to remain the same. Whatever else is useless, or would be injurious, is taken up, and the tissue or the fibril, on which the virus rests, is modified or changed; but this extraneous and fatal body bids defiance to all the powers of nature. It enters not into the circulation, or it would necessarily undergo some modification in its passage through the innumerable minute vessels and glandular bodies which are scattered through the frame. It would excite some morbid action; or if it were not thus employed, or in the

it is excited into action by some irritation in such part; from whence it is carried along the sensible and irritable fibre to exert a particular morbid action on certain organs; to all appearance, on the sensorium itself: for the sensations which arise in the bitten part, as an invariable precursor to other morbid phenomena, follow the course of the nerves, rather than of the absorbents; and we do really find the first constitutional symptoms are of nervous origin. Our principal authorities, I believe, unite in considering it as a disease of the respiratory nerves, principally expending itself on the cervical, dorsal, and lumbar portions of the spinal column; and such I believe it to be altogether, in the human subject: intrinsically, it may be so in the brute constitution also (as Dr. Clutterbuck would ingeniously derive every fever from inflammation of the brain); but in the brute subject I am disposed to think it unites itself with a specific phlegmasia, little known to the human[12].

purposes of renovation or nutrition, it would be speedily ejected. It lies for an uncertain period dormant; but at length, from its constant presence as a foreign body, it may have rendered the tissue or nervous fibril more irritable and susceptible of impression; or it may have attracted and assimilated to itself elements from the fluids that circulated around it."—*Pamphlet on Rabies*, p. 25. Whatever are the principles of its action, the surrounding parts evince the presence of a stimulus, which usually first shews itself in the general texture by slight inflammation, attended often with intolerable itching in the dog, which is betokened by that constant licking and even gnawing of the bitten part, which has been noticed as a common symptom of rabies in that animal. In the human, this first acknowledgment of the incipient action is also, I believe, invariably present: in Mrs. Duff's case, a pimple first appeared on her nose, being the spot which a favourite Newfoundland dog had scratched and then licked, in the commencement of his rabid attack. This pimple troubled her by its smarting, itching, and throbbing, three days before the more active symptoms appeared. In Metcalf's case, shooting pains, directed from the hand towards the head, preceded the more active symptoms; and something of this kind, I believe, would be found to accompany every one, in some degree or other, were the circumstance particularly attended to. In horses, cattle, and swine, this secondary inflammation is equally common and even more striking: they will rub, bite, and tear their bitten parts with violence, and in them the local irritation is long kept up after the disease is fully formed.

[12] Mr. Youatt appears to entertain an opinion of the complete identity of the rabid disease in every animal whatever, and consequently in man as the head of them all. He certainly argues the point most ingeniously, it must be owned; yet the analogy appears rather strained, although, with the above admissions, it

The Medical Treatment, Curative and Preventive of Rabies.

The *curative treatment* of rabies in the *dog* has hitherto proved invariably unavailing, neither has it been found otherwise in any other animal; while the few successful cases on record of a favourable result from any means tried on the human

will be hard to deny his premises; which are such, that it would be doing both the author and the reader injustice to give in any other form than his own. "Rabies," he says, "is a nervous affection, and particularly of the respiratory system of nerves, or those which are employed in the instinctive and involuntary actions connected with respiration, and which serve to associate many of the voluntary muscles in the discharge of the same function. These nerves arise from the medulla oblongata, in which, or on its membranes, inflammation is almost invariably detected. They do not spring from the same columns with the other spinal nerves; and they have roots peculiarly constructed, and following one another in an uniform line, as if they were leagued in the performance of the same office. They are the portio dura of the seventh pair, distributed over the face; the glosso-pharyngeus, which supplies the pharynx and the tongue; the par vagum, wandering to the pharynx, the larynx, the heart, the lungs, and the stomach; the recurrent, ramifying on the muscles of the larynx, and the membrane of the glottis; and the spinal-accessory given to the neck and shoulder, and reaching even to the loins. The twitchings and contraction of the eyelids, the strabismus, the spasms of the cheek, and lips, and face, and the paralysis of the muscles of the lower jaw, sufficiently prove an affection of the portio dura. The protrusion of the tongue, the enlargement of the sublingual and other glands, the inability to swallow, and the alteration of the voice, implicate the glosso-pharyngeus. The increased circulation, the laborious respiration, the peculiar inflammation of the pleura, and the constant and often intense inflammation of the stomach, are attributable to the par vagum. The involuntary barking, the husky grating inspiration, the frequent inflammation of the trachea, the uniform inflammation of some part of the glottis in the quadruped; and the dreadful excitation of the membrane of the glottis, with all the horrors of hydrophobia in the human being, testify that the recurrent nerve has not escaped: while the hurried and uncertain action of the fore extremities, and the palsy of the region of the loins, are clearly to be traced to the spinal accessory. These nerves anastomose freely with the cerebral nerves, therefore cerebral affection soon occurs. There is a state of general and extreme excitation, a very peculiar wandering and delirium, and, in some animals, fits of savage and uncontrollable ferocity. They likewise unite and blend with the ganglionic nerves, and thence proceeds altered secretion; a morbid secretion of the gastric juice occasioning the strangely perverted appetite of the dog; and a still more depraved secretion of the saliva, converting that bland and innocuous fluid into the direst poison."

hydrophobia, have a veil of obscurity thrown over them that damps our confidence, and leaves us to hope only that time may yet afford us a remedy[13] for this dreadful scourge. The extent to which this inquiry has already been carried, will prevent a circumstantial detail of the various medicinal agents which have been used as curative of rabies. I shall only cursorily notice them, and reserve myself for those that, fortunately for man and brute, are found efficacious as *preventives* against such attack; pausing only to observe, that my account will combine both the human and brute treatment, that I may render these pages more extensively useful, as well to the public, as to the practitioner in brute medicine, whose opinion will be often sought for, where the owners of rabid animals have been unfortunately wounded by them. Here, as I have often found, the timely benefit of judicious advice, and even the application of proper preventive means, have gained unbounded gratitude, and a consciousness of being eminently useful.

The most ancient remedy on record for the rabid malady, after it had actually appeared, was *cold bathing*, which it was usual to apply to the extent of a temporary drowning; but, although it is handed down to us, that it occasionally proved successful, these accounts are not now relied on[14]. I tried it on two rabid dogs to the extinction of life almost, and it certainly suspended the progress of the complaint for some hours; which I attribute, not to any specific virtue in the bathing itself, but to the shake given to the constitution: for it is remarkable, that any great violence offered from accidental causes[15], during the progress of the

[13] "Nec desperandum tamen ob exempla jam in aliis venenis constantia, de inveniendo hujus *singularis veneni antidoto singulari*."—*Boerhaave, Aphorism* 1146.

[14] Celsus recommends it, and gives instances of its successful application. Euripides is one who was said to have been cured by it.

[15] During the *rovings* of a rabid dog, it is to be expected that he will meet with severe beatings from other dogs, and, not unfrequently, he will be subject to violent attacks from human persons, from whom he may, however, eventually escape, although severely handled. I have had many opportunities of observing dogs, after their return, which have been so treated, and I have invariably found

disease, particularly in its early stages, in every instance appears to beget a new action, which, for a time, arrests the progress of the rabid one, and suspends its more active symptoms for a longer or shorter period, usually in proportion to the violence done. The morbid poison, however, soon resumes its ascendancy, and the fatal issue is only protracted, but never removed.

Warm bathings have been also fully tried, both in ancient and modern times, with no better success. Bleeding largely was an ancient remedy, which has been revived by the moderns; and on the authority of some reputedly successful cases, but now questioned, I was induced to try it to its fullest extent *(ad deliquium)* on two or three rabid dogs. Mr. Youatt has done the same, and in every instance with a mitigation of its violence, but in no one of permanent benefit[16]. It therefore appears to act in these instances, as in all others where much violence had been committed on the constitution, by a suspension of the morbid action of the disease. Of electricity and galvanism, as applied for the cure of rabies, I have no experience: it has, however, been fully tried in the human subject without success. Vinegar, which, in Germany, was said (but I believe erroneously) to have arrested the human disease, has failed in dogs in every instance in which it has been made use of. Mercury I have also tried to its fullest extent, and in most of its popular forms, without the smallest benefit. Camphor and opium, both by the mouth and per ano, have proved equally inert in these cases[17]. With the belladonna I

that an absence of the more active appearances of disease has followed for two or three days; and that, in some cases, to such a degree as to deceive those around, and make them consider the recovery of the animal as certain; but gradually the complaint has returned with all its violence.

[16] M. Gossier, Professor of the Veterinary School of Lyons, also employed bleeding on three dogs to deliquium, without success. It is, however, to be remembered, that in the human subject it is said to have cured the complaint in one or two instances in India: and in a case related in *The Lancet*, it protracted the fatal course to the fourteenth day: and though the Asiatic cases are rather doubtful, it has evidently some restraining power.

[17] Professor Dupuytren injected opium in solution into the veins of two rabid dogs, but without any alleviation of the symptoms.—*Dissert. de Ch. Busnout*, Paris, 1814.

succeeded no better; and the alisma plantago, or water plantain, has proved equally unsuccessful with Mr. Youatt, who however observes, that it usually *mitigated* the symptoms; as did also the belladonna. The scutellaria lateriflora, so highly recommended by Dr. Spalding, of New York, Mr. Youatt has not succeeded with; but he yet considers that it deserves more trial, from the decided effects it produced in the cases on which he tried it. The internal and external exhibition of the volatile alkali has not been more fortunate, although the analogy of its beneficial effects, in cases of poisoning by the bite of the cobra de capello, had raised hopes of its proving useful here also[18]. Cauterizings, scarifyings, blisterings, &c., have been applied to the bitten part in the human subject after the attack, but without avail. From the known property of arsenic in lessening the spasm of epilepsy, something was hoped from it in the hydrophobic spasm of the human, but it has not answered the expectations formed.—See *Med. Chirurg. Trans.*, p. 393; *Lond. Med. Rev.* for March and April, 1793. On rabid dogs I have frequently tried it, and, from its decided capability, evinced on each trial, of suspending the complaint, I was once also led to hope much from it; but repeated experience has proved that its benefits are not permanent[19], but act only like other violent means. Chlorine has been said to remove the hydrophobic symptoms, but late trials have shewn the fallacy of the assertion. The same has happened to sulphuric acid, with which a Dr. Skuderi pretends to have effected several cures of hydrophobia, by its internal and external administration. More recently also the guaco has been tried on both the human and brute subjects; but

[18] Tissot strongly recommends the eau de luce, and says, "Il calma l'agitation, occasion un seur abondant et fit disparoître les symptoms."—*Avis au Peuple*, tom. i, p. 179, 8vo, Paris.

[19] I have given it, in these cases, in very large doses, as five, six, and even a greater number of grains, and have been surprised how little disturbance it seemed to produce; probably from the stomach being already affected with a specific inflammation, by which it was rendered less likely to be acted upon by occasional causes.

although it had a temporary effect in mitigating the symptoms in both, yet the fatal termination was the same. There is, therefore, reason to believe that we have no *authenticated* case of the true rabid malady having yielded to any treatment, either in man or beast, after it had actually made its attack.

The preventive treatment.—Here, fortunately for mankind, we stand on 'vantage ground, as we are able, in most cases, by the adoption of judicious means, to insure the safety of the bitten, when we can distinctly ascertain the wounded part; which in brute subjects, it is evident, it is more difficult to do than in the human. The *prophylactics*, that both interest and ignorance have extolled and brought into use, are innumerable: very few of them, however, have deserved the smallest confidence; on the contrary, they have lulled into a fatal security those who have relied on them[20].

The oldest prophylactic with which we are acquainted, is *suction*. We have very ancient records of its employment, and, if we can believe these legends, a particular family enjoyed the privilege, or devoted themselves to this process of drawing, by the application of the mouth to the wound, the poison inserted by a venomous animal[21]. A *ligature* has also been recommended to stop the progress of the rabid poison, but, according with the present theories, it can have no preventive efficacy whatever.

Cold-bathing, but particularly *sea-bathing*, as a preventive, is

[20] Boerhaave complains of these impositions. "Nec Æschrionis apud Galenum et Oribasium arcano de cancris combustis; nec Scribonii Largi famigeratâ opiatâ ad rabiem Siculorum; nec Peregrini consilio de pelle hyænæ; nec Ætii, Rufi, Possidonii, cinere cancrorum cum theriacâ; nec jactatâ Palmario medelâ; vel nimis laudato Mayerno, Grew, et venatoribus stanno cum Mithridatio; nec in somniis sacris revelatâ radice cynorrhodonis; aliisve in cœlum elato lichene cinereo terrestri pimpinellâ, jecore rabiosi canes exusto, et similibus exceptis."

[21] Celsus strongly recommends this practice, and brings forward the family of Psyelles to prove how free it is from danger: "Non gustu, sed vulnere nocent."—"Ergo quisquis exemplum Psylli secutus, id vulnus exsuxerit, et ipse tutus erit, et tutum hominem præstabit."—*De Medecin.* lib. v, chap. ii, sect. 12.—Fothergill, Heister, and Vaughan, have spoken favourably of *suction* as a preventive.

a practice also of great antiquity, and, even yet, the uninformed classes place implicit reliance on it. Its incapability of insuring safety was, however, early noted; and Palmerius, Ambrose Parey, Desault, and others, were at much pains to discredit the practice: nevertheless, both hot and cold bathing long retained some powerful advocates[1]. However respectable the authorities in its favour, the lamentable experience of many who have trusted to its efficacy, even when performed, as Van Swieten has it, *ad suffocationem usque*, but too well proves. Among the well-informed, therefore, no reliance is now placed on it.

Mercury has long been employed as a prophylactic. Sauvages must have been greatly deceived by its ill-deserved reputation[2]. Sir G. Cobb's famous Tonquin remedy, so highly extolled by Claude Duchoisee, in India[3], was prepared from the native and factitious cinnabars, with musk. Turpeth mineral, which is a sub-sulphate of this metal, was highly extolled by Tissot[4], and has been very generally used among the dogs of this country. Many other authorities of note have extolled the preventive efficacy of mercury, from its power in counteracting the effects of the syphilitic poison[5]; but as it has entirely failed in man and beast, under every advantage of administration, so it has ceased to be relied on as solely sufficient to guard the constitu-

[1] "Protinus in balneum amittunt, eumque ibi desudare, dum vires corporis sinant, vulnere aperto quo magis ex eo quoque virus distillet."—*Celsus de Med.*, lib. v, c. 47. Tulpius is warm in his commendation of sea-bathing: "Neque vidi hactenus quemquam (licet viderim plurimos) cui tempestivè in mare projecto quidquam sinistre postmodum evenerit, sed salutari hoc remedio vel flocci facto, vel tardè ac timidè adhibito, dedère multi irreparabiles supinæ suæ incuriæ pœnas."—*Obs. Med.* lib. vii, c. 20.

[2] "J'ignore que ce remède ait encore manqué."—*Ch. d'Œuv.* p. 148. *Nosologia*, tom. ii.

[3] "Hommes, femmes, enfans, Indiens, Portugais, Francois, &c. &c. plus de trois cents personnes, sans qu'un seul, a été affligé du plus petit symptom de rage."—*Nouv. Meth. pour le Trait. de Rage*, 21.

[4] *Avis au Peuple*, tom. i, p. 156. A celebrated sportsman says, "During twenty-one years that I kept hounds, I never knew it fail."—*Treatise on Greyhounds*, 2d edit. p. 88.—It was also Mr. Beckford's favourite remedy.

[5] Dr. Moseley appears to be one of the last advocates for the use of mercury extended to a slight salivation: but even he recommends the use of caustic to the wounded part in conjunction with it.

tion[6]. Neither has arsenic any more claim to the character of a preventive than it has as a curative.

Dr. Mead's *pulvis antilyssus*, composed of *lichen cinereus* and black pepper, has wholly lost its reputation, although, during his practice, he expressed a wish that he knew as certain a preventive for any other disease. The *Ormskirk Remedy* is also another striking proof how easily a reputation may be gained, and how undeservedly: for although palpable instances of its failure are numerous, it once enjoyed great reputation, and is even yet occasionally trusted to. The *water plantain* (alisma plantago) has also proved one of those unfortunate articles offered to notice, which only served to raise hopes it was doomed never to realize. As it came recommended by a Russian counsellor of state, M. Jalowsky, at the express direction of his government, it met with a cordial reception, and a full trial in England and elsewhere, but every where it proved fallacious, both as a preventive and cure.

To enumerate all the other articles, particularly of the vegetable world, that at some period or other have been deemed prophylactics, would be endless. Among the most popular we may mention the eglantine, or wild rose *(rosa sylvestris,* Linn.)[7], pimpernel *(anagallis)*[8], deadly nightshade *(atropa belladonna)*[9],

[6] Leroux, Oudot, Raymond, Lafond, Majault, Enaux, Chaussier, and Morveau, are neighbouring authors who have denied the efficacy of mercury in this case; and, among ourselves, I believe all our best authorities, almost without exception, do the same.

[7] The wild rose seems to have been a remedy of much repute in its day (Baudot, *Mem. de la Soc. Roy.*, 1783). In a communication to the Royal Society of Medicine of Paris, M. Provost details the virtues of its inner bark. And, among the Sicilians, its spongy excrescences *(bedeguar)* are considered a powerful antidote to the rabid poison *(Museo di piante rare du* P. Boconi). According to Pliny, its virtues were revealed by an oracle; from whence we may learn, that a preventive efficacy was long ago attributed to it.

[8] An account of its supposed anti-rabid virtues may be seen by consulting *Hist. de la Med.*, Sprengel, tom. ii, p. 48; *Œuv. de* Bourgelat, *Reflex. sur la Rage Voy. Journ. d'Agricult.* p. 109.

[9] As long as the time of Pliny, the belladonna has been used as a remedy against rabies. Apulei also notices it; and in later times, Munch also, *Hist. de la Soc. Roy. de Med.*, 1783, 2d part. At the present time, Mr. Youatt attributes some preventive efficacy to it.

rue *(ruta)*[10], garlic *(allium sativum)*, sage *(salvia)*, daisy *(bellis)*, vervain *(subena)*, fern *(polypodium)*, wormwood *(artemisia arborescens)*, mugwort *(artemisia vulgaris)*, betony *(betonica)*, and the tree-box *(buxus)*[11].

[10] Rue was a very ancient favourite prophylactic, and it still enters into many of the country nostrums and drinks against madness. It formed also an ingredient in the celebrated powder of Palmerius.—See Andry's account of celebrated remedies.

[11] The tree-box is one of the oldest internal preventives made use of. Mention appears to be made of it in the writings of Hippocrates; Galen and Celsus likewise speak of it. It has continued to be used from that time to the present, and it forms the active principle in the remedy common in several counties, but in none more than in Hertfordshire, where it is known under the name of *Webb's drink*, from the family name of the persons who prepare it. The rue which enters into it, in equal proportions, I have not the same dependance on. The *buxus*, or box, has long been known in India also, and is still used there as a preventive of rabies; but it is, I believe, the dwarf box that is there used; and is usually united with a decoction of the horns of the rhinoceros.

I had long known that a family of the name of Webb, living in the neighbourhood of Watford, prepared and sold what is called a *drink*, as a remedy against rabies generally. The many assurances I had received, relative to its efficacy, supported by facts apparently authentic and conclusive, gave me reason to suppose that it really possessed some preventive properties; but, till the year 1807, I had not embraced any opportunity of putting its qualities to the test of experiment. About that time madness proving very prevalent, and the public curiosity becoming very much excited on the subject, my attention was awakened to the importance of such a remedy, even if it had only some moderate pretensions. To endeavour, therefore, to ascertain the grounds on which the reputation of this remedy stood, I went to Watford, and prosecuted my inquiries with such success, that, from one of the two brothers who had dispensed it, I gained the original recipe, which had been before verified on oath before a magistrate. The public anxiety was then such, that, united with the knowledge that I had particularly directed my attention to the subject, it would have enabled me to realize a very considerable sum, had I chosen to keep the recipe a secret and vended the compound; but no such thought entered my mind: humanity required that it should be universally known; and the day after I returned from Watford I communicated to the public at large, by various channels, the recipe, with all I could learn at that time of its operation, &c.: the original communication may be seen in full in the *Medical Review* for December 1807. The following method of preparing it is an improvement on the original formula; the proportion and mode of administration agree with the country instructions:—

Take of the fresh leaves of the tree-box..... 2 ounces
Of the fresh leaves of rue..... ..... 2 ounces
Of sage..... ..... half an ounce;

My opinions on the efficacy of the *buxus* or *box* as a *prophylactic of rabies* have been long before the public; and if palpa-

Chop these finely, and, after boiling them in a pint of water to half a pint, strain and press out the liquor. Beat them in a mortar, or otherwise bruise them thoroughly, and boil them again, in a pint of new milk, to half a pint, which press out as before. After this, mix both the boiled liquors, which will make *three doses* for a human subject. *Double* this quantity will form *three doses* for a horse or cow; *two-thirds* of it is sufficient for a large dog, calf, sheep, or hog: *half of the quantity* is required for a middling sized dog; and *one-third* for a small one. These three doses are said to be sufficient, and one of them is directed to be given every morning fasting. Both human and brute subjects are treated in the same manner, according to the proportions specified.

In the human subject I have never found this remedy produce any effects whatever, except a momentary nausea from disgust: to prevent which from operating disadvantageously, the old recipe directs it to be taken two or three hours before rising, by which method it will be less likely to be brought up again, as otherwise so large and unpleasant a dose might be. Neither in any animal, except the dog, have I ever witnessed any violent effects from its exhibition. In dogs, however, I have frequently seen it produce extreme nausea, panting, and distress; in two or three instances it has even proved fatal: but, as it is probable that it is more likely to be efficacious when its effects on the constitution are evident; and as, at the same time, it is proper to guard against these effects becoming too violent; so it is prudent always to begin with a smaller dose than the one prescribed, and to increase each succeeding one until it shews its activity, by sickness of the stomach, panting, and evident uneasiness. Under such a plan, perhaps, five doses are not too much.

Between the years 1807 and 1817, this preparation was administered, under my direction, to nearly three hundred animals of different kinds, as horses, cows, sheep, hogs, and dogs*; the latter in by far the greater proportion. It may naturally be presumed, that ungrounded fear operated in some instances, and that it was given to animals who were suspected only to have been in danger. Some of the remainder, it may also be supposed, would have remained safe, had nothing been done for them. In others, washings, cauterizations, &c., had been added to the box remedy; yet, still a very considerable number, after all these admissions, must have remained exposed to the preventive power

* I have administered, in the course of my practice, this remedy to nearly fifty human persons also; but as most of those joined with this treatment the excision or cauterization of the wounded part; and as, in others, the rabid virus would not probably have taken effect, so I lay little stress on these proofs of its efficacy; although three or four of these persons, at their own express desire, trusted solely to it. Its efficient properties appear unequivocally proved by the numerous instances of canine safety which followed from its use. Mr. King, a veterinary surgeon of deserved eminence, who lives at Stanmore, in the very centre of the range of Webb's drink, observes of it, "I have known it fail frequently among animals; but of the many hundreds of persons that must have taken it, no individual, to my knowledge, has suffered hydrophobia." *Veterinarian*, No. I, p. 32. Mr. Youatt also in his pamphlet remarks on the properties of the box, "That it had undeniable efficacy in preventing the disease. The majority of the dogs to whom it was exhibited were saved."

ble failures have convinced me that, like all other means of prevention attempted through the medium of the constitution, it ought never to supersede the more certain means of the destruction of the bitten part, yet I have witnessed enough of its powers to convince me, that it may be resorted to with much reasonable hope of success. The importance of any preventive means which could thus be gained through the medium of internal administration to the brute, would be very great; for the detection of all the bitten parts in animals with a covering of hair is self evident: I have searched a dog known to be attacked (and by the future consequences proved to have been bitten) over, most carefully, for an hour, without being able to find any puncture; and even if one or two should in such a case be discovered, how many chances there are that others may remain unobserved! But inasmuch as human safety is of infinitely greater consequence than that of the brute creation, so a prophylactic which held out a reasonable ground for dependance, although it did not amount to

of this preparation alone, out of which number only nine or ten cases of its failure occurred. In a few of these it is reasonable to suppose that the medicine was not all got down, or otherwise was returned; but five or six of them were palpable and fair instances of failure, the medicine having been all given and retained. It is remarkable, that, of these palpable failures, the majority were wounded in the head—one of these was a horse, bitten in the lip; which further agrees with what I have already remarked, that the inoculation more certainly takes effect, and the disease makes its attack earlier, when received in the head than elsewhere. It is unfortunate that this remedy should be so bulky, and so nauseous. Its bulk often renders it difficult to give to a dog, particularly without waste; its nauseous taste also makes it very liable to be brought up again: either of which circumstances must, of course, render its efficacy doubtful. To obviate these inconveniences, I endeavoured to condense the dose, by making an *extract* of these plants, but particularly of the box, in which plant I believe the efficacy principally, if not wholly, exists; but which practice I afterwards abandoned, from a belief that it somewhat destroyed the efficacy of the remedy. Mr. Youatt, however, has continued the use of the extract of box alone under a different impression. If the dose can thus be rendered small and pleasant, it is a great advantage; but if it cannot be diminished, without its qualities suffering, the inconvenience must be put up with, and the animal must be made to swallow the whole, after which he should be attentively watched, to observe whether it is retained on the stomach. If it is returned, the dose must be repeated until it does remain.

perfect security, would be still of immense value in some cases in human practice, as I have very often witnessed. Under this impression, I have united with my detail the preventive reputation it has, as regards the human as well as the brute subject[12]; and, with the same view, I would introduce to the reader Mr. Youatt's account of the skull-cap *(scutellaria lateriflora)*, first brought into notice by Dr. Spalding, of New York, who says he has administered it, with invariable success, in no less than eight hundred cases; and in several of these cases the disease had actually commenced its career. His method of giving it was, by infusing a tea-spoonful and a half of the powdered leaf in a quart of hot water; of which, he ordered half a pint to be taken morning and night, omitting the dose every third day, when a mild

[12] As justly observed by Mr. Youatt, the imputation of quackery is very generally associated with the recommendation of these preventives. But is there not some exclusiveness in this, not creditable to the medical character? are there really no antidotes? is a known introduction of the syphilitic poison in no way prevented but by a destruction of the whole mucous surface exposed to its contact? on the contrary, is not an early administration of the mercurial preventive in most instances a sufficient safeguard against even the external ulceration, and always against the constitutional ravages? Are all the accounts of immunity from the poison of serpents by internal means fabled? Let the chances be ever so small of a prophylactic property in any internal remedy, they should be cherished and employed; and foul befal him who, for personal gain, would keep the knowledge of any such matter a secret. He, indeed, would be a quack; let the profession hunt him down without regret: but let them not assume (fallible as all our opinions on medicine are proved to be) that there is no "balm in Israel;" no constitutional means of rendering the system non-susceptible to the received virus. Boerhaave thought there *might be;* analogy gives us reason to expect *there is;* then let our endeavours to bring it to light be general, and not fettered with school prejudices or professional exclusiveness.

Granted, as it ever must be, that the removal of the inoculated portion should supersede all other preventive means; are there no cases where it is imperative to lay hold also of every other assistance, as in extensive lacerations, where the complete extirpation is rendered doubtful, under every caution? when the eyelids are wounded also, or where insuperable dread exists to an operation, which may involve the whole limb? such cases do occur; and also the most apparently judicious application both of the knife and caustic has failed. Might not these cases have been saved, had some other preventive been also added to the treatment?

purge of sulphur was given. Mr. Youatt has, however, found it more efficacious to combine the belladonna in the proportion of half an ounce to a pound of the scutellaria; of which he observes, "The result has been, a medicine which I cannot, dare not, call a *specific*, for it has failed; but the use of which, in cases of doubt and fear, I would most earnestly recommend." For *dogs*, he begins with a drachm ball for one of a moderate size, containing two scruples of the scutellaria, and about two and a half grains of the belladonna: this is given morning and night. On the second week, two balls are given; on the third, three; and this plan is continued for six weeks. The animals seldom cease to eat, but they rapidly lose flesh. The proportions made use of for the human subject, Mr. Youatt does not mention; but Dr. Spalding's account will furnish a sufficient hint. Thus it may be hoped, that, between these apparent preventives, some security may be gained, even in those distressing cases where the extirpation cannot be carried to a sufficient extent without endangering life, or exciting a dread which would be insupportable, &c. &c.

Of prophylactics whose inefficacy have been sufficiently disproved, there are yet a sufficient number; and such have been drawn from the animal as well as the mineral and vegetable kingdoms. The scarabei, or beetle tribe, particularly the cock-chaffer, or may-bug *(scarabæus melolontha,* Linn.)[13], the blister fly[14] *(meloe vesicatorius),* and various testacea[15], are of this kind. The liver of the animal by which a person has been bitten is a remedy as old as the time of Pliny, who speaks himself of its effi-

[13] *Weikard, Thesaurus Pharmaceuticus Galeno-chymicus,* 1626. If we credit other accounts handed to us, these insects were no less famous in Spain, Germany, and Prussia, than in France.—*(Andry,* p. 271.)

[14] Avicenna and Matthiolus wrote expressly on the virtues of this meloe, as an infallible remedy for the rabid malady. Werthof and Andry also notice it.

[15] As the testacea, particularly calcined crabs, were used so long ago as the time of Galen, and were recommended by Sennert, it would seem that an early confidence was placed in absorbents. It was this confidence, probably, that produced the Ormskirk medicine, which appears to be only the earthy absorbents coloured.

cacy. We have it also recorded, that Palmerius forced his patients, who had been bitten by a rabid wolf, to take the dried blood of the animal.

The Destruction of the wounded Part the most certain Preventive of Rabies.

From what has already been stated with regard to the rationale of the rabid inoculation, it will readily appear, that, provided the virus be immediately taken into the circulation, it must yet *return to the part* it was originally received by; and it must there commence a *new irritation*, by which some new morbid compound is generated; and it is the absorption of this compound that is *alone capable of producing* the malady. Again; on the more popular theory, that the rabid virus does not enter the constitution, but lies dormant in the part where it was first received; it is still the same, as regards the preventive treatment; which it is evident is only effected with certainty by the entire removal of the inoculated portion; because, that being absent, no new morbid compound can be formed on the first supposition, nor can any local excitement arise on the second.

Provided, therefore, that the wounded part or parts are *completely destroyed*, the patient will, to a demonstration, be rendered as secure as though never bitten; which is a most consolatory circumstance in a consideration of this dire disease.

It is also rendered doubly so, since the rationale of the action of the morbid virus teaches us, that it is indifferent at what time this removal takes place, provided it be within the limits of the inoculation and those of the morbid symptoms. This circumstance is of immense importance to the human subject; and it is as fully supported by facts, as consistent with the theory laid down. I am as confident on the subject, as a very long experience and close observation of innumerable cases can make me, that not only is the destruction of the bitten part a certain preventive, *but that such removal of it is as effectual at any time previously to the symptoms appearing, as at the first moment after*

the bite. My professional education as a human surgeon being not altogether unknown to the public, it is not to be wondered at, that this recollection, when united to some notoriety which attached to my attention to this particular and then prevailing disease, and to my vast opportunities of observing it, should have produced some direct confidence in my opinion. It, therefore, often happened, that, from being consulted about the rabid *animal*, I was next advised with about the wounded *owner* or *attendant*. It often occurred also, that when the case was submitted to any other surgeon, my attendance was likewise requested; by which means I have seen, comparatively, nearly as much of human as of brute practice, in the preventive treatment of rabies. I have myself operated on upwards of fifty persons, who had been unquestionably bitten by rabid dogs, and on a few bitten by cats, every one of whom did well; and which statements I make, principally to enforce dependance on the practical truths which have preceded, and on those directions which are to follow.

Although the removal of the bitten part may be undertaken at any time short of the attack, yet as it is always uncertain at what time this secondary inflammation may take place, so it is prudent to perform the excision, or cauterization, as soon as is convenient; but it is frequently a matter of great importance to the peace of those unfortunately wounded, to know, that, when any accidental cause has delayed the operation, it may be as safely done at the end of several days as it would at the first moment of the accident. I have myself repeatedly removed the bitten parts many days, and not unfrequently weeks even, after the original wound had been perfectly healed up; yet the operation has always proved completely successful. Of the methods employed for the extirpation of the bitten parts, the *actual cautery*, the *potential cautery*, and *excision*, are employed, and have each of them their advocates.

The *actual cautery* was employed by the ancients, who burned the parts with heated iron, sometimes with brass, silver, or gold.

Some of the moderns have also favoured its use; and as it is a remedy immediately at hand, it is not an ineligible one, particularly where the unnecessary dread of after consequences, from immediate absorption, is fixed in the mind, and also where other assistance is not at hand. When, likewise, the wound is of a determinate form, and superficial in extent, the actual cautery is a ready and convenient method, particularly with regard to horses, cows, and other large animals, who are not easily restrained. In such cases, a *budding iron*, so called among farriers, is an appropriate instrument; or even a kitchen poker, or any other iron whose surface can be adapted to the form of the wound, when heated red hot, may be used.

Caustics, or the *potential cautery*, can be applied under many forms. The *caustic potass*, or *potash*, formed into a solid body, and then called *lapis infernalis*, is a very powerful escharotic; and, when an extensive surface not in the neighbourhood of very important parts is to be destroyed, it may be employed; but, it should be remembered, that it liquefies speedily, and therefore, when great nicety is required, and a slow destruction of parts is advisable, as about the head, or in the vicinity of important vessels and nerves, it is less eligible. It is also supposed that it becomes decomposed by the blood, and loses much of its activity. If caustics be used, Mr. H. Earl recommends strong nitric acid, which by its fluidity might extend itself in every direction, and would therefore be very proper where there was extensive laceration. The *nitrate of silver*, usually called *lunar caustic*, liquefies less speedily, and is equally powerful, provided a longer time be allowed for its operation. In some cases it is recommended to be powdered and sprinkled over a surface, or to be inserted within a deeper wound, mixed with an equal part of other matter, to lessen its potency, and an adhesive plaister then applied over to confine its effects. This method, as regards animals, can only be advisable when a very extensive laceration with numerous jagged edges and sinuosities exists, particularly in the neighbourhood of such important parts that the knife cannot be wholly depended on:

in all others, this plan would occasion so much pain and resistance on the part of the animal, as to defeat its intention, by being rubbed or torn off. I have, through a very long practice, adhered to the use of this form of caustic, as the most manageable and effective of all the escharotics. It may be cut or scraped to any shape, and long habit has enabled me to make the eschar thick or thin, deep or superficial, at pleasure. In a word, it is slow but certain. *Muriate of antimony,* called *butter of antimony,* is a very favourite application with some practitioners, particularly with the French[16]: it is applied by means of a piece of linen or lint fastened to a probe, or by aid of a camel's-hair pencil; the surface of the wound being then smeared over with it. As its action begins immediately, and, after a few minutes, is confined to the parts it is applied to only, so it is evident that it is a more eligible application for extensive lacerations, and wounds of uncertain depth and extent in animals, than the powdered nitrate of silver. Potass and lime are sometimes also used as escharotics. The mineral acids, and mercurial preparations, as the oxymuriate and red nitrate of quicksilver, are now and then also employed in this way.

The use of caustics has been objected to, as not carrying the destruction of parts far enough, the formation of the eschar preventing the further progress of the caustic agent, but this I am convinced is not a cogent objection. If the nitrate of silver be formed into a point, and a moderate friction be kept up by it over the eschar, the decomposed portions are removed by the rubbing, and the cauterization goes on to any depth or extent required. In penetrating wounds, made by the canine teeth, the probe having detected the course of the wound, the knife may be properly employed to dilate it, and render it accessible to the approach of the caustic; in which case equal certainty is gained

[16] "*Le beurre d'antimoine* (hydrochlorate d'antimoine) est préferré à tous les caustiques que nous avons cités, par Leroux, qui l'a proposé par Sabatier, par Portal, et par Enaux et Chaussier, parceque son action est prompt."—*Trolliet*, p. 341.

by one as by the other, with less loss of substance. It has also been objected to caustics, that they may dilute the virus, and carry it farther within the wound; but, if previous active ablution of the wound has taken place, it may be supposed no virus but that involved within the fibre will remain. It is truly said, that caustics cannot be so conveniently applied to the bottom of a deep wound; but in these cases the knife can be first employed in dissecting out the whole cavity, with all its surrounding parts. A much more imaginary objection has been urged to the use of caustics, particularly to those formed of the caustic alkalies, which is, that in their action they unite themselves with the morbid saliva, and with the decomposed animal matter, form together a saponaceous mass or eschar, which may retain the virus, and keep it ready to be acted upon by a new absorption. That such a fear, however, is groundless, will appear, when it is considered that the agent employed, be it what it may, which is equal to the destruction of the animal *solids*, must also of necessity be more than sufficient to decompose the animal *fluids* also, and totally deprive them of any morbid activity; and this we find to be actually the case with rabid virus mixed with even diluted caustic matter, as has been exemplified in the experiments of Huzard, Dr. Zinke, and others, where such matter entirely failed to excite rabies: it must, however, be acknowledged that all these experiments require repetition.

Excision of the part, after the rabid bite, is practised by most of our eminent surgeons of the present day, in preference to cauterization. I have no doubt but that they do so on principle; but I have never yet seen occasion to alter my preference of the caustic: and Mr. Youatt, whose practice has been very extensive in these cases, gives it his decided approbation also. It must, however, at last rest in a conviction, that each of these modes may be supposed at some times the preferable one; and that occasions will occur, where they may be advantageously united. As each claims some advantages over the other, so each also owns some disadvantages. A skilful surgeon, therefore, will bind him-

self to neither, but will act according to circumstances. The partizans for the use of the knife argue, that the operation of excision is quicker, and can be applied more extensively. It is certainly, where much is to be done, more quickly performed; but when it is so done, unless perfect ablution has removed all surrounding virus, may not the very instrument which is to insure life be sowing the seeds of death, by making a fresh morbid inoculation at every section? To prevent this, therefore, when excision is absolutely necessary, it is prudent, after every stroke of the knife, to wipe the blade carefully; but it would still more certainly avoid danger, were the whole excised cavity well soaked with a caustic fluid, as a strong dilution of nitric acid: and, after all, it would make surety double, were the whole surface touched with the lunar caustic[17]. Towards animals, particularly of the larger kinds, where dispatch is requisite, and where deformity and a destruction of parts are not of so much consequence, excision may be considered preferable. In the neighbourhood of

[17] In one of the engagements between the English and French in the expedition to the Helder, a spent bullet tore away some substance from the root of the nail of the ring finger of my right hand, which wound, after it had healed, left an indented surface of extreme sensibility. This part was to prove the heel of Achilles to me; for exactly in the centre of this hollow did a rabid terrier indent its fang very deeply. Sensible of the danger accruing from a bite received in a part already so susceptible, I knew I had little prospect of safety, without destroying all the parts around. I immediately, therefore, after well washing it, scooped out a portion, which embraced the sides of the cavity made by the tooth, and which penetrated also beyond the extent of its point. Into this I poured nitric acid; and then having dried it, I passed a blunt point of nitrate of silver over the whole surface, and forcibly pressed it into the bottom of the wound. As the eschar formed and hardened, I raised it, and renewed the application. It was not until an hour and a half thus painfully occupied, that I considered myself safe. I was also twice bitten afterwards, to which wounds I simply applied the lunar caustic, as they were more superficial: but I am led to detail the practice I pursued in the first case, purposely to shew that excision and cauterization may be with great propriety united: for though I greatly prefer the caustic in general cases, yet here was one wherein, without enlarging the wound by the scalpel, it might have been difficult to have passed the caustic to the requisite depth; or to have removed what I considered was necessary of the former morbidly tender sides of the old wound.

large bloodvessels, nerves, &c., it is evident that the knife must be used with extreme caution; whereas the caustic may be applied freely with much less fear, as the eschar which starts up protects the parts underneath, and enables them to reinstate themselves previously to sloughing, if they should be slightly injured. The caustic gives little pain, and, by removing the slough formed, it may be carried to any depth, and to any extent, with the certainty of destroying the virus as it prooceeds.

The flow of blood, during *excision,* is very apt to obstruct a proper and clear view of the extent of the injury; and a consequence follows, which I have frequently witnessed among surgeons in operations on the human subject, which is the removal of a much larger quantity of substance than is absolutely necessary. With the caustic, nothing of this kind happens: proceeding deliberately, *every portion of wounded surface* is taken in succession, until the whole inoculated part is destroyed, but no more.

Process of operation for the Rabid Bite.—When a dog, or any other animal, has been attacked by one that is rabid, it is evident that a difficulty presents itself which does not exist in the human subject under similar circumstances. The incapability of pointing out the wounds that may have been received, and which the hair may prevent from being observed, renders it necessary that a very minute examination of every part of the body should take place, by turning the whole hair deliberately back; after which, to remove any rabid saliva that may adhere to the hair, the animal should be washed all over, first with simple warm water, and, next, with water in which a sufficient quantity of either potash or soda is dissolved, to render it a moderate ley, in doing which the eyes must be carefully guarded. Having finished this operation, which will render the dog, or other animal, secure from accidental virus hanging about; it might increase the safety of the operation, if the wounds were bathed with an arsenical solution, made by pouring four ounces of water on two drachms of arsenic: in many instances, a mere ablution of them

with an arsenical solution of greater strength than here noted, has been trusted to solely as a preventive, and which, from the results, appeared sufficiently so; but prudence ought not to stop here.

After these precautions have been attended to, therefore, proceed to the actual removal of the bitten part by whatever mode may appear most eligible to the operator. A sportsman who might choose to act for himself, would find a ready one, when the wound was a simple puncture, or punctures made into the hide of a horse or dog, to thrust in a blunt-pointed iron, heated to a red heat; after which, the part might be further treated with any escharotic he may have at hand, as muriate of antimony (*butter of antimony*), sulphate of copper (*blue vitriol*), &c. &c. The regular practitioner, if acting under my directions, would in the case of simple punctures adapt a portion of nitrate of silver (*lunar caustic*) to the shape and size of the wound: this he would insinuate by degrees into it, making it embrace the sides fully, and extend it completely to the bottom, where it should be worked around sufficiently long to insure a complete destruction of the inoculated surface. A lacerated wound I would recommend to have its ragged edges removed, and its sinuosities enlarged, that the caustic may reach every part of the wounded surface; which it is evident must be most particularly attended to. As the slough hardens during the process, remove it by means of a probe, and then retouch all the parts. In operating on a *human subject*, I always repeated cauterization at the end of every second or third day for at least twice. By applying the caustic gradually at first, the pain it gives is by no means intense, and it even lessens the further it is proceeded in. If much heat and pain follow, envelope the whole part in a poultice. There is every reason to suppose that keeping up a continued discharge in the part, after the entire destruction of wounded surfaces, is unnecessary; I never practised it myself, and I have had no reason to regret the omission.

Having thus reached the close of the practical detail, I shall

finish this important subject by offering a few remarks, calculated, I would hope, to ease the minds of many individuals, on some material points which are apt to occasion much unnecessary dread, and much false alarm. I would first notice, that, by a very distorted view of the risk incurred by association with him, the dog, at once our faithful friend, gallant protector, and useful servant, is in danger of being proscribed altogether. Many of those who are otherwise warmly attached to the animal, yet dare not indulge in the pleasure of his company, from a totally unnecessary dread, grounded on a supposition that he can become rabid, from a variety of other circumstances besides the bite of another affected dog. I would beg to assure those who think thus, that they are entirely in error: nothing but a successful inoculation can produce it; nor, out of those actually bitten, do more than a third probably become mad, even when an effectual inoculation has been made; thus, there is little reason for all the alarm that is felt. The disease never makes its *first* appearance with any mischievous tendency: indeed, so little danger is there from the early stage of the complaint, that I should entertain no fear whatever, were I confined altogether day and night in the same room with half a dozen dogs, all duly inoculated with rabid virus. The slightest degree of attention will always detect some peculiarity in the affected dog's manner—some departure from his usual habits: and this may be observed one day at least, commonly two days, before the more active symptoms commence, or before any mischievous disposition shews itself; and which, at the worst, is not often practised towards those they are habituated to, if not meddled with. In a great number of the cases that occur, no mischievous disposition at all appears towards human persons through the whole complaint, except it be called forth by opposition and violence; which consideration tends to reduce the danger still more materially. It ought, likewise, in no small degree, to lessen the dread and fear of this malady, that, even when the worst has happened, and a human person has been unfortunately bitten by a rabid animal, still that a

ready, simple, and efficacious remedy is at hand, the application of which is attended with little inconvenience, while the consequences are certainly productive of all the safety that can be wished for. On this immediate part of the subject, however, I am well aware, that intense mental dread is often excited. From simple fear of the consequences, many have died; many others have been rendered temporarily insane, and some permanently so. Would I could instil into such minds the *uncertainty* of the disease appearing at all; that is, even when no means have been used; and the *perfect security* they may feel who have submitted to the preventive treatment detailed. I have been bitten several times,—Mr. Youatt several also; yet in neither of us was any dread occasioned: our experience taught us the *absolute certainty* of the *preventive* means; and such I take on me to pronounce they always prove, when performed with dexterity and judgment. It unfortunately happens that these prejudices and fears are too often very deep rooted, and even immovable. What is then to be done? Is nothing to be attempted? Yes: we will hope that a physician may be found for the mind also, in the judicious medical attendant on the case; to whom I hardly need hint, that, in those desperate instances of mental excitement, it is totally in vain to *argue* down the needless dread and imaginary dangers fostered in a distempered mind; it is still more useless, it would be even cruel, to be offended, or made harsh by them. No one, I presume, would harass himself with fear could he avoid it: fear weakens the mind, and it is remarkable that it often makes its greatest inroads on an otherwise powerful one. Arguing here is reasoning against fearful odds; it is, in fact, offering reason at the shrine of insanity; for a person so impressed is, to all intents and purposes, on that question, *beside* himself.

When I was engaged in practice, I was requested to decide on a suspicious case of a dog, the property of a mercantile gentleman of great respectability and talent. I pronounced the dog rabid, and he was destroyed. Some weeks afterwards I was again requested to visit this gentleman, whom I hardly knew, so

great was the change in him during this short interval. He appeared now bordering on the grave, and to which, had his mind not been administered to, he would have gone. I had been already informed by his lady, that, soon after the dog alluded to was dead, her husband became impressed with the idea, that, as the animal had licked his hands, he was endangered, and should most certainly become rabid also. He had applied to his usual medical attendant, and had also consulted two, if not three physicians; each of whom endeavoured to *reason* him out of his fears, by assurances that he had incurred no risk at all; that nothing was necessary for him but to think no more about the matter. Each visit produced the same assurances, and the same faithlessness on his part: he retreated from business, forsook all society, loathed his food, and passed his time in pacing his room, waiting the attack.

How was it that not one of his medical advisers touched the only chord that could vibrate on his distempered mind? It was clear that he was alive to one impression only, which was a conviction of his danger; and consequently no advice could reach his imagination which did not recognize the same; and none could arouse him which did not at the same time point out, with great confidence, a ready and certain means of averting this fancied danger. On this principle, with the consent of his lady, I acted; and when I had heard from himself the particulars of his case, that he was certain it was impossible he could escape from hydrophobia, having had both his hands repeatedly licked by his dog; and that, in fact, he already felt the poison at work, which would soon do its worst; I could but be concerned to observe what havoc one idea only, constantly and erroneously entertained, could make even on a strong mind. I however treated the matter most gravely, condoled with him on the danger incurred, and which I abstained from in anywise lessening; but, at the same time, I ventured on an assurance, that, imminent as it was, it was not too late to avert it: on the contrary, that long after the time which had elapsed in his case, I had treated several others, every

one of which had terminated successfully; and that, if he would submit to have the whole surface of the back of both hands cauterized, I would ensure his safety. He immediately fell in with this idea; it was a call from the grave, as it were: and I proceeded at once to prepare for the operation by softening his hands in warm water; after which I smeared them over with the fusible caustic potash, so as effectually to erode the cuticle, without entering very deep. Both hands were then wrapped in poultice: he took a gentle opiate that night, and a laxative in the morning. I repeated the process the second day, but more slightly, and again on the fourth day. The day following the first operation I dined at his house, when he ate the first solid food he had tasted for a fortnight, was composed, and even cheerful; in fine, from that time a new turn was given to his thought; hope took the place of fear; next, certainty succeeded to hope; and, in three weeks, he was again in his counting-house.

VIPER BITE.

In every quarter of the globe but Europe, dogs are exposed to the venomous attacks of snakes, whose bite is instantly mortal. The viper is the only animal of this kind in Britain capable of inflicting a wound attended with serious consequences, and to which dogs become exposed when hunting. In these cases, the bitten part swells enormously, and the animal expresses great distress and suffering: at length he becomes affected with torpor, or, in some cases, with convulsions, when death commonly ensues. But it is not often that these bites are fatal, particularly when proper means are resorted to for obviating the effects. These means consist in freely rubbing the bitten part with volatile alkali, or with the spirit of hartshorn mixed with oil; giving also seven, ten, or twelve drops of the volatile alkali, or otherwise forty drops to a large dog, of the spirit of hartshorn, in a teaspoonful or two of sweet oil, every hour, until the amendment is evident.

The *venomous stings of Hornets, Wasps,* and *Bees,* may be relieved by applying the vegetable blue used to colour linen. Laudanum also, or vinegar or brandy, will, either of them, often remove the pain and inflammation speedily.

CLASS IX.

External and Local Inflammations.

WOUNDS.

Dogs are liable to become wounded in various ways, and their wounds, however bad, are not, generally, much attended to, from an opinion that the animal's *tongue* is the best dressing. This is very questionable: in some instances, I am certain, no application can be worse to a wounded dog than his own tongue. Whenever dogs are at all inclined to foulness, as a tendency to cuticular complaints is called, a sore, so licked, is sure to become mangy, and to be aggravated by the licking.

Wounds into the chest or belly should be closed up as soon as possible, to prevent the external air from penetrating: a stitch or two made in the integuments is proper; over which, some adhesive plaister, and a bandage over that, may be applied. If the intestines protrude in a wounded belly, and the bowels are themselves wounded; first, neatly stitch up the intestinal opening, and return the gut; then close the wound in the integuments, leaving the thread which united the gut, if long enough, hanging without the external wound.

In *wounds of arteries or veins,* the hæmorrhage should be stopped by pressure: should that not succeed, take up the vessel with needle and thread. *Wounds into joints* occur from cuts, and often from stabs: great inflammation is apt to follow, and the dog is often lamed for life. If the synovia escapes by a very minute puncture, and the inflammation is not yet very extensive, treat exactly as in horse practice, by firing with the budding iron.

If the wound be a lacerated one, and not already much inflamed, place over it a pledget of lint, and over that a thick paste of linseed meal; after which, bandage the whole up moderately tight. Should the inflammation be great, reduce that by a common poultice, and then endeavour to close the joint as above.

In all extensive and lacerated wounds, a stitch or two should be made with a large needle and thread, as it will reduce both the sore and the scar; but, as such stitches soon ulcerate out in the dog, so the edges should be still further secured by slips of sticking-plaister. A recent wound should be cleansed from the dirt, and then covered up: when it begins to suppurate, dress with any mild ointment. In thorn wounds, or others made with splinters, carefully examine that nothing is left within them; otherwise no attempts to produce healing will prove successful. The most common wounds in dogs arise from the bites of others; and under any such circumstance, should any suspicion arise that the dog was mad by which the wounded one was bitten, proceed as directed under *Rabies.* The wounds arising from common bites, in general soon heal of themselves: if, however, they are very extensive, wash them with friars' balsam, to prevent their becoming gangrenous.

Fistulous wounds, in glandular parts, often prove very obstinate. In such cases, means must be taken to get at the bottom of the sinus, and to raise a more healthy inflammation therein; which may be done, either by injecting something stimulant into it, as a vitriolic wash, or by passing a seton through it. Some fistulous wounds, such as those in the feet and about the joints, will often not heal; because either the bones, or the capsular ligaments, are diseased: in such, the wound requires to be laid open to the bottom, and to be stimulated with oil of turpentine, or with tincture of Spanish flies, daily, till the diseased bone or ligament is thrown off, when a healing process will immediately commence.

ULCEROUS AFFECTIONS.

Dogs are subject to ulceration of various parts of the body, and such state is dependent on very different causes. Cancer, which is the worst ulcer we are acquainted with, is but little common in the dog: those cases, however, in canine pathology, that do approach its character, are noticed under the head *Cancer*. A very malignant ulcer sometimes breaks out in the lips, face or neck, in distemper, and is there noticed. In virulent canker, the internal, and sometimes the external ear also, becomes attacked with extensive ulceration; I have even seen it proceed so far, as to destroy the dog. The eyes become frequently ulcerated in distemper; but cure the distemper, and the eyes reinstate themselves, although the ulcerative process was very considerable.

The Blain is an ulcerous affection of the sides and under surface of the tongue, which sometimes extends into the cheeks: it is often attributed by country people to being poisoned with eating some herb, or by killing a toad or serpent, and by other equally sapient causes. It is sometimes attended with constitutional disturbance; at others it interferes but little with it. In the former case, give antimonial powder in doses of two or three grains, twice a-day; when there is no constitutional disturbance, attend then principally to the blain or vesicles which will be seen as large livid bladders, studding the sides and under surface of the tongue. Lay these open, and wash with a solution of zinc or alum several times a-day.

Glandular parts in dogs are very liable to ulceration; the most common among which are the *teats* in bitches.—See *Scirrhus*.—The vagina, sheath, or bearing, and sometimes the womb also, are found to be affected with a morbid ulcerous state, which is very usually accompanied with a fungous excrescence, from which blood exudes, or a bloody ichor. This disease participates more of the nature of cancer than any other to which dogs are generally liable.—See *Cancer*.

The *penis* is likewise the subject of an ulcerous affection,

which is also commonly accompanied with a spongy fungous excrescence, exuding a bloody ichor: but it does not erode the neighbouring parts, and appears to partake more of the nature of a vascular warty substance, than that of cancer. This state of fungous excrescence on the penis is often mistaken for a disease of the kidneys or bladder. A few drops of bloody fluid appear now and then to come from the dog; and, as in the act of making water, the last effort squeezes the fungus, and forces a drop or two at that time, so it is concluded, that either the urethra, or the kidneys, or bladder, is affected. But, if the dog be held, and the prepuce stripped down, so as to expose the penis throughout, there will generally be found one or more large fungous knobs, from which this bloody secretion proceeds.

The *cure* consists in removing every one of these excrescences, carefully and completely, with the knife, leaving no part of the base or pedicle of each: having so done, sprinkle the excised part with a little alum in fine powder; and, unless the excrescence has been very considerable (when it will be necessary to remove the prepuce every day to prevent an union of it to the penis), the rest may be left to nature. In very slight cases, where these fungi have appeared as warts only, which is not uncommon, I have removed them by merely sprinkling them daily with powdered savine three parts, crude sal ammoniac two parts. Other ulcerous affections are noticed under the head *Wounds*.

TUMOURS.

Dogs are subject to a variety of swellings or tumours. If we commence our account with the head, we shall find that it is the subject of a peculiar tumefaction, not very unlike human erysipelas. In dogs of a gross, full habit, from natural plethora, or from over-feeding, the head will sometimes become suddenly enlarged, hot, tender, and painful, accompanied with thirst, quickened pulse, and every mark of fever. In a day or two a general eruption takes place, which proves to be a kind of acute

mange.—See *Mange.* In distemper also, a phlegmonous tumour occasionally forms upon some part of the face, generally about the lower jaw, which soon maturates, but afterwards forms an unhealthy and spreading ulcer.—See *Distemper.* The flap of the ear is also subject to a very considerable tumour, containing serum.—See *Tumefied Flap of the Ear.* The *neck* is likewise subject to tumefactions. The principal of these cases arises from an enlargement of the glands on each side of the windpipe, and is called *Bronchocele; which see.* The neck will sometimes also become swollen from *rheumatism.*—See *Rheumatism.* On the *body,* glandular tumours, or wens, will likewise form in various parts: there is hardly any situation in which I have not seen them, and extracted them from.—See *Cancer* and *Glandular Swellings.* But the most frequent glandular tumours, are those that form in the teats of bitches.—See *Scirrhus.* In old bitches, particularly in spayed ones, there often appears a tumour, or enlargement, on each side of the back about the loins; which, though it elevates the skin externally, yet is evidently more deeply situated. These swellings arise from large accumulations of fat about the ovaria.

POLYPUS.

Now and then an excrescence is found protruding itself from some cavity, of an indeterminate form, but usually pendulous and nipple-shaped. I have seen them in the nose, within the uterus and the sheath of the penis, as well as pendant from other parts also; but by much the most usual situation in which polypi are found, is within the sheath or vagina of the bitch. When the pedicle of the polypus can be reached to its origin, it may be taken off by excision: when this cannot be conveniently done, still a ligature may commonly be introduced around its base, and suffered to remain till the whole drops off. I have frequently removed polypi by both these methods, without future inconvenience or reproduction.

TUMEFIED OR SORE FEET.

When the feet of dogs become sore by travelling, it is common to wash them with brine; but this is not altogether a good practice. It is better to bathe them with greasy pot-liquor, milk, or buttermilk, and afterwards to defend them from stones and dirt, by wrapping them up. When the feet become sore from any diseased affection of the *claws*, the proper treatment may be seen under *Mange*, and under *Cutting of Claws*, in Class XII.

Occasionally, however, violent inflammation follows very hard and continued travel, and the spongy balls of the feet take on a slow suppuration; the dog can hardly be moved, and his time is spent in licking them: often he has strong symptoms of fever. A poultice of linseed meal ought to envelop each foot, which should be renewed once a-day; if the dog gnaws it off, apply fomentations twice a-day; for it is essentially necessary that a healthy suppuration should be established as quick as possible, otherwise a species of founder takes place, and the dog will remain tender footed ever after. As soon as matter fluctuates, open with a lancet. The *claws* by undue growth often curve, and indent their points within the integuments, and occasion tumefaction of a toe: this must be remedied by cutting away the indenting portion.—See *Cutting of Claws in Operations*. A tumefied toe or toes we occasionally meet with, where around the base of the claw the secretory part or quick is swollen, inflamed, and excoriated. This is a mangy affection, and is described with the anomalies of *Mange*.

HERNIAL TUMOURS.

As the dog may be the subject of most of the varieties of hernia, so these tumours may be various; but that to which he is naturally most prone, is *epiplocele*, and which tumour is by no means uncommon in such as are very fat: the unclosed state of the abdominal ring, and the very great dimensions of the *omentum*, particularly when enlarged by an extraordinary quantity of

adipose matter, and pressed on by other accumulations, as may be supposed, very naturally incline it to be gradually pressed through the *ring*, and to occupy the scrotal bag, where I have seen the distention enormous. I never saw a case of strangulation; but, if such were to occur, without doubt it would shew itself by the distention and colicky pains. The *operation* of the taxis must be first attempted; and should that fail, proceed to dilate the stricture by which it is strangulated.

CLASS X.

Diseases of the Eyes.

OPHTHALMIA, OR INFLAMMATION OF THE COATS OF THE EYE.

Idiopathic Ophthalmia.— Dogs are occasionally attacked with inflammation of the coats of the eye or eyes; in which case, there is an impatience of strong light, the conjunctiva is red, and when the affection is intense, the pupil itself is clouded with milky whiteness, or otherwise, the bloodvessels of the opaque cornea are seen in red lines extending over it. If this state of the pupil is not present at the first, the continuation of the affection for several days commonly produces it: now and then, the humours of the eye are seen to exhibit a reddish tinge; but this is not frequent. The *causes* of the affection are various: excitements of any kind, as violent exertions, heat and cold alternating in extreme degrees occasion it: thus I have seen it follow from plunging into water when the dog has been very hot, and not accustomed to the change.

Ophthalmia is also occasioned by external violence, and by irritating matters settling *within* the eye; or stings, &c. *without*. These cases are known usually by one only being affected; but I have seen pointers, setters, and spaniels suddenly thus seized after hunting in cover, from some poisonous herb; in which case it is seen in both eyes. Thorn wounds, scratches from cats,

&c., are productive of it; but it is commonly confined to one eye.

The treatment is not dissimilar in principle in all these cases: should the inflammation be very considerable, bleed, purge, and keep low: foment the eyes with an infusion of poppy heads, until the light does not distress the dog, when apply the following wash several times a-day:—

Superacetate of lead (*sugar of lead*)	half a drachm
Rose water	6 ounces.

When the inflammation is somewhat lessened, use the following:—

Sulphate of zinc	1 scruple
A weak infusion of elm bark	6 ounces
Brandy	1 tea-spoonful.

Sometimes the following has moderated the irritation when other applications have failed:—

Tincture of opium	half a drachm
Infusion of green tea	4 ounces.

All exposure to strong light, or other sources of irritation, as foul housing, &c., should be avoided. In very bad cases, I have sometimes scarified the insides of the eyelids, and even the white part of the eye itself, by means of the point of a fine lancet, with very great benefit; and in others, where much obstinacy in the complaint has shewn itself, particularly in foul-coated dogs, a seton in the neck has done much good. After the *active* symptoms have disappeared, should any opacity of the cornea remain, a small pinch of a powder may be sprinkled into the eye once or twice a-day, composed of one scruple of acetate of lead, and one drachm of calomel.

Ophthalmia of Distemper.—This might be called a *specific ophthalmia*, from peculiarities attending it: or it might be named *symptomatic*, as being an accompaniment of a particular disease. That it is very different from idiopathic ophthalmia is proved by its consequences; for while the remaining effects of the idiopathic attack are in the ratio of the intensity of the inflammation, in the

symptomatic they bear no proportion whatever to it. The distemper, as an inflammatory affection of the mucous membranes, might be supposed, *à priori*, likely to extend its affection to the eyes also; which it does in a marked degree, and with almost invariable certainty; so that distemper is frequently characterized as a defluxion from the eyes and nose. The early symptoms of this ophthalmia are not unlike those which betoken the idiopathic attack; except that a more early and more abundant appearance of a purulent secretion is common. The injection of the opaque, and the cloudiness of the transparent cornea, are, in the cases I point at, intense; to which very frequently succeeds, in the very centre of the pupil, a minute circular speck of ulceration that sometimes remains stationary during the distemper. At others, it extends both in depth and breadth; sometimes so much as to evacuate the aqueous humour: when this occurs, there usually follows a luxuriant sprouting of fungoid granulations, which give great pain, and at last, to all appearance, totally disorganize the eye. It is now that the peculiarity of this ophthalmia shews itself; for from this apparent ruin of the structure of the eye it will gradually reinstate itself, and very often there will not remain a trace of injury behind. The disease is most frequently confined to one eye only; but I have seen it in both. *The topical treatment of the ophthalmia of distemper* is blended with that of the idiopathic; but the constitutional is referrible to the treatment of distemper itself; for to cure that, is to remove the ophthalmia.

CATARACT, OR OPACITY OF THE CHRYSTALLINE LENS.

The chrystalline lens occasionally loses its *pellucid appearance* in dogs, as in ourselves, and from the same causes: a common one is idiopathic ophthalmia; that accompanying distemper but seldom occasions it. In old dogs *cataracts* are by no means uncommon, from a breaking up of the strength of the parts; nor are they very unusual either in younger dogs, being sometimes the

result of external injury, and at others it steals on as a chronic affection of the organ: but there is this difference between the disease in the old and the young, that, in the former, both the eyes commonly become affected; whereas, in the latter, it is usually confined to one only. In all these cases the before-described powder may be blown into the eye; but it is very seldom that any treatment arrests the final termination in blindness.

AMAUROSIS, OR PARALYSIS OF THE OPTIC NERVOUS EXPANSION.

This is not a very common affection, but it is now and then seen to follow epileptic fits; and I have known it come on without apparent cause also; and I witnessed it once consequent to a fall into a gravel-pit. It is not difficult to see the rationale of the disease in these cases: nor are we led thereby to be very sanguine in our hopes of cure. Local and constitutional tonics may be applied, with stimulant applications to the back of the head.

DROPSY OF THE EYEBALL.

An accumulation of the liquid contents of the eyeball now and then also occurs, which greatly distends the globe of the eye, and by its pressure occasions an imperfect contraction of the iris. I once punctured the sclerotic coat, and evacuated the fluid; but great inflammation followed, and the organ gradually wasted away. I have also introduced both stimulants and absorbents, but particularly calomel. I have tried electricity, pressure, setons, and blisters; and all without effect, except in one instance, where a seton in the cheek, with calomel introduced between the lids, appeared to gradually lessen the distortion of the globe: but the owner grew tired of the trouble and chance of expense, and destroyed the dog before the precise effect could be ascertained. I have also seen accumulation, within the globe of the eye, of blood, or extravasated and serous effusion adding to it. In one such case I evacuated the engorgement by a couching needle,

and the eye was saved. This might be called *traumatic dropsy*, as being effected by a thorn stab.

EYELIDS, ULCERATED.

THERE is now and then a mangy affection met with which is confined to the eyelids, attended with enlargement, ulceration, and a loss of hair. I have seen it produce innumerable little orifices, each of which threw out a muco-purulent fluid. In one instance an extremely minute syringe had a fine canula adapted to these secreting orifices; by which a mild solution of nitrate of silver was introduced every day. By these means, and apparently by these only, could this disease be got under. In the generality of cases which occur, the following will be found effective:—

Ointment of nitrated quicksilver	1 drachm
Superacetate of lead (*sugar of lead*)	20 grains
Spermaceti ointment	3 drachms.

Anoint the parts, night and morning, lightly with it, watching the dog afterwards that he does not rub it into his eyes. Internal medicines will also assist the cure.—See *Mange*.

CLASS XI.

Diseases of the Skin.

MANGE.

THIS cutaneous affection is very common among dogs of every variety, and is observed in his congeners, the fox and wolf also: it is not altogether unusal to find a dead fox so mangy, as apparently to have been destroyed by its virulence. It has been compared to itch in the human, and not without justice; as, if I am not greatly mistaken, the canine mange is capable of producing the human itch: but, whether the human itch can be given to dogs, is a point which my experience does not enable me to

determine. The canine mange is a chronic inflammation of the skin, dependent, in some instances, on a morbid constitutional action: it is *infectious* also, from maisms produced from animal exhalations; and it is notoriously *contagious* from personal communication with one affected. It is not, however, so completely contagious, in all its varieties, as is supposed, for I have known dogs to sleep with affected ones for some time without becoming mangy; but in the majority of cases it is otherwise; and in some the predisposition to it is such, that almost simple and momentary contact will produce it. The mange which is received by contagion is more readily given to another than that which is generated. The uniform presence of animalculi within the psoric pustules has revived the idea that it originates in the attack of acari.

Mange is also hereditary.—A bitch, lined by a mangy dog, is very liable to produce mangy puppies; but the progeny of a mangy bitch is certain to become affected sooner or later; and I have seen puppies covered with it when a few days old. The morbid action by which mange is *generated* is excited in various ways, and by various causes. When a number of dogs are confined together, the acrid effluvia of their transpiration and urine begets a miasm productive of a virulent mange, very difficult to be removed. Close confinement, with salted food, is even more certainly productive of mange: thus dogs who have come from distant countries, on ship-board, are generally affected with it. Very high living, with little exercise, is a frequent cause: a state nearly approaching to starvation is also not unfavourable to it. In both these apparent contrarieties, the balance between the skin and the digestive functions is not preserved, and the disease follows as a necessary consequence. The disease has some permanent and fixed varieties; it has also some anomalies; but the pruritus or itching is common to all.

The scabby mange, one of the most common forms under which this eruptive complaint appears, is an extension of the secretory pores of the skin in very minute red vesicles, that at first are dis-

tinct, but as they extend become pustular, confluent, and scabby. Sometimes simple linear cracks of the cuticle seem to pour out a serous fluid, which concretes into scab. It is occasionally confined to the back; at others it is found principally in the joints of the extremities.

The red mange, so called from a redness of both skin and hair in the parts affected, is likewise not unfrequent, and partakes much of an *herpetic* character. In this variety there is less pustular eruption, but nearly the whole skin of the body, particularly in white-haired dogs, is in a state of active inflammation: it is also hot to the feel, and itches intolerably. In the red mange, the hair itself becomes morbidly affected, and alters in its colour, particularly about the extremities: it also falls off, and leaves the skin bare, much thickened, and puckered into stubborn wrinkles. Dogs with the strong coarse hair called wired are very liable to this state; in which a magnifying glass applied will often detect innumerable minute ulcerations, covered by furfuraceous scales.

A direct ulceration of the sebaceous glands is another form of mange, but is much less frequent than either of the former: these glands in this state appear to become internally ulcerated, and have their sebaceous outlet preternaturally enlarged. The affection seldom shews itself universally, but partially, as over the face, around the joints, and in solitary patches over the rest of the body. The diseased parts are tumid, shining, and look spongy; from the little openings of which a moisture, between mucus and pus, issues. I have not observed this affection but in the larger breeds of dogs; and usually, I think, in pointers and setters. I have seen it almost entirely confined to the eyelids, as noticed in *Diseases of the Eyes*.

A cuticular eruption, called surfeit, is a fourth appearance that mange frequently assumes. It seems, in many cases, the consequence of some active inflammatory state of the constitution, frequently of some great local internal inflammation; in which cases it puts on something of an acute form. It sometimes breaks out suddenly in bitches after pupping; and in dogs newly re-

covered from distemper; in fact, any great vascular excitement may produce it: thus, when a dog travels during a great part of a very hot day, and becomes afterwards exposed to cold, a *surfeit* is oftentimes the consequence. It is usually seen in the form of partial blotches, it being seldom that it extends universally over the body. In some cases there is little appearance of elevated scab; but large patches shew themselves, from which the hair has fallen, and left the skin bare and rough from the branny scaly eruption, which itches with more or less violence. Some sportsmen allege that a surfeit is sometimes occasioned by giving food in a hot state. Salt provisions have certainly brought it on; and long-continued feeding on oat or barley meal has done the same.

Acute mange.—Besides that variety just noticed, there is yet a more directly acute form of the complaint, which puts on an appearance not unlike erysipelas in some instances; in others it is a pure erythema, or red efflorescence; but more frequently it is accompanied with some ulceration. It commences by a direct febrile attack, with panting, heat, and restlessness; next some part of the body (usually the head) begins to swell, which, the second or third day, gives place to ulceration of the nose, eyelids, lips, ears, neck, &c. This ulceration proves superficial, but extensive; and continues a longer or a shorter period, as the treatment is more or less judicious. Bleeding, aperients, and febrifuges, form the constitutional remedies: the topical ones are tepid fomentations the first two days; and, when the tumefaction has given place to ulceration, the application of a cooling unguent of superacetate of lead (*sugar of lead*), with spermaceti ointment, will be proper. What remains of the affection, in a week or ten days' time, may be treated as common mange.

The anomalies of mange are numerous; among them may be reckoned the acute variety just noticed, but which was appended to surfeit, from some similarity it possessed to that form of the complaint. *Local mange*, as an anomaly, exists under as many forms as the parts it attacks. Almost every eruptive complaint

may degenerate into mange, such is the predisposition in all the carnivora to psoric and herpetic affections. Those that deserve specification are *canker* both *within* and *without* the *ear*, which will follow in due order.

Inflamed scrotum is of the mange variety, and partakes of the nature of erysipelas, which see.—Ulcerated Eyelids, already described with Diseases of the Eye, are of the like kind.

Diseased toes or claws.—The affection here meant is a singular anomaly of mange of the following kind. One of them will appear highly inflamed, swollen, and somewhat ulcerated, around the claw. In such a case the dog employs himself in continually licking it, which, instead of doing good, as is supposed, always makes it worse. It is commonly mistaken for some accidental injury; and the owner is surprised to find, that neither the dog's licking, nor his own attempts to make the toe sound, succeed. The fact is, that this is simply a mangy affection, and may be readily cured by applying the sixth ointment directed for the cure of mange. If it should, however, prove very obstinate, the first ointment directed for *Canker on the Outside of the Ear* may be then tried with confidence. In either case, the foot must be sewed up in leather, to prevent the dog getting at it, taking particular care not to bind it up too tight: but the securing of the diseased part from being licked is essential to the cure.

Mange is apt to be considered more troublesome than hurtful, which is a great error; for it is not only invariably hurtful, but very often fatal also: when long continued, it frequently ends in dropsy. It sometimes diseases the mesenteric glands, and the subjects of it die tabid: neither in any case can it be neglected with impunity. In sporting dogs it is injurious to their qualities as well as their health: their scent invariably becomes impaired, and their general powers are always weakened by its irritation.

Treatment of mange.—Whatever similarity may exist between this complaint and the human itch in other respects, a very great difference is observed between the obstinacy of the one, and

the ease with which the other may be cured. Medical practitioners among the human consider the itch as local; but veterinarians, to their vexation, will find mange constitutional; too often very deeply rooted also in the dog. Like the human itch, it is, however, most judiciously treated by remedies that excite absorption; and sulphur, the grand panacea of the one, is also the general application for the other: but, as mange exhibits greater varieties, and is altogether more difficult of cure, it is seldom that we can trust to this alone for that end. The following formulæ are adapted for the *first* described form of mange:—

No. 1.—Powdered sulphur, yellow or black..... 4 ounces
Muriate of ammonia (*sal ammoniac, crude*) powdered ..... half an ounce
Aloes, powdered ..... 1 drachm
Venice turpentine ..... half an ounce
Lard, or other fatty matter ..... 6 ounces.—Mix.

Or,

No. 2.—Tobacco in powder..... half an ounce
White hellebore in powder ..... half an ounce
Sulphur in powder ..... 4 ounces
Aloes in powder..... 2 drachms
Lard, or other fatty matter ..... 6 ounces.

Or,

No. 3.—Powdered charcoal..... 2 ounces
Sulphur powdered..... 4 ounces
Potash..... 1 drachm
Lard, &c..... 6 ounces
Venice turpentine..... half an ounce.

Or,

No. 4.—Sulphuric acid (*oil of vitriol*)..... 1 drachm
Lard ..... 6 ounces
Tar ..... 2 ounces
Powdered lime..... 1 ounce.

Or,

No. 5.—Decoction of tobacco..... 3 ounces
Decoction of white hellebore..... 3 ounces
Oxymuriate of quicksilver (*corrosive sublimate*) ..... 5 grains.

Dissolve the corrosive sublimate in the decoctions, which should be of a moderate strength; when dissolved, add two drachms of powdered aloes, to render the mixture nauseous, and prevent its

being licked off, which ought to be very carefully guarded against: the best means for this purpose is a muzzle having a very fine wire capping or mouth-piece, which will effectually prevent the dog from getting his tongue applied to the ointment, which would prove his almost certain destruction. When, therefore, the application contains mercury, tobacco, or hellebore, it is best not to depend on the bitter of the aloes as a preventive to licking, but to apply an effective muzzle, or otherwise to sew the dog up altogether in a dress, watching him, however, that he does not gnaw it off.

The formulæ for *red mange* are as follow:—

No. 6.—Of either of the ointments already prescribed, 1, 2, or 3 ..... 6 ounces
Mercurial ointment, mild..... 1 ounce.—Mix.

Or,

No. 7.—Powdered charcoal ..... 1 ounce
Prepared chalk ..... 1 ounce
Superacetate, or *sugar of lead* ..... 1 drachm
White precipitate of quicksilver..... 2 drachms
Sulphur ..... 2 ounces
Lard ..... 5 ounces.

In some cases, the mange ointment, No. 4, alternated with No. 6, one being used one day, and the other the next, will be found beneficial. In others, benefit has been derived from the wash, No. 5, united with lime water. In slight cases of red mange, the following has been found singularly successful:—

No. 8.—Oxymuriate of quicksilver (*corrosive sublimate*) powdered..... 6 grains
Sulphuretted potash (*liver of sulphur*) ... half an ounce
Lime water ..... 6 ounces.—Mix.

The *third* variety requires a considerable difference in the treatment. When the little spongy openings, piercing the cellular tissue, will admit of it, they should be injected, by means of a very minute syringe, with the wash No. 8. The general surface should also be anointed with the following:—

No. 9.—Ointment of nitrated quicksilver ..... 2 drachms
Superacetate of lead ..... 1 scruple
Washed flowers of sulphur ..... half an ounce
Lard..... 1 ounce.—Mix.

The *fourth* kind of mange, called *surfeit*, requires little variety in the treatment, except that bleeding, purging, with every other part of a depleting treatment, are here more particularly necessary. With regard to the external applications, it should be remembered both in this, and all the other kinds of the disease, that, when the sores are very irritable, and much inflamed, it will be frequently essentially necessary to allay the heat and inflammatory irritation in them before they will bear any of the regular mange applications. The best means of doing this will be by anointing them with the following for a few days:—

Superacetate, called *sugar of lead*	1 drachm
Spermaceti ointment	2 ounces.

When the irritation is allayed, proceed with the ointment No. 3, or alternate this with No. 6.

Besides the fixed varieties before described, mange puts on different appearances in different subjects; but they may be all referred to one or other of these heads. Numerous *domestic* remedies are in use, but, I believe, no one article acts so favourably as several united; and it may, perhaps, not be too much to say, that the recipes already given will meet every variety: their efficacy has been proved by long experience and a successful practice. Tobacco water is often used for the cure of this complaint, and, in very slight cases, it frequently does some good; but, unless used with extreme caution, it is a most dangerous remedy, from the tendency all dogs have to lick themselves; and, when they do this with tobacco, the effects are often fatal, as I have several times seen. Great caution is also requisite, for the same reasons, with all kinds of washes in which there is any thing active, as mercurials, &c. It is not an uncommon practice to dip mangy dogs in the tanners' pits; but it is a very filthy and not often an efficacious one, except in very slight cases: in such instances, an infusion of oak bark, with a little alum, would of course do as well.

Having detailed the *outward applications*, it becomes necessary to mention the *internal remedies* that are required. When

mange is generated, the constitution must be at fault to produce it; and, when it is taken, it will itself affect the constitution: so that in all, except very slight cases indeed, some internal remedies are requisite. In very full habits, and particularly in red mange, bleeding is very proper[18]. I have also, in some instances, experienced benefit from a seton placed in the neck as a counter drain, particularly when the head has been much affected. It is also very requisite to attend particularly to the food: whatever has been injudicious, both as to quantity and quality, should be altered. Frequently a total change in the manner and matter of feeding assist the cure very materially.—See the subject of *Feeding*.—Purges, when regularly administered, often prove very useful; for which purpose Epsom salts may be given, two or three times a-week, in mild doses. But the most effectual internal remedy is a judicious use of alteratives. Red mange requires the aid of mercurial alteratives. Indeed, they assist in every variety of it, but this one can hardly be cured without. The following formula is a good one:—

Black sulphuret of quicksilver *(Æthiops mineral)*...	1 ounce
Supertartrate of potash *(cream of tartar)*.....	1 ounce
Nitrated potash *(nitre)*.....	2 drachms.

Divide into sixteen, twenty, or twenty-four doses, according to the size of the dog, and give one every morning or evening. Any of the other medicines of this class, mentioned under the head *Alteratives*, may be also used on these occasions.

In desperate cases the following may be tried, after the others have proved unequal to the cure:—

Sulphuric acid *(oil of vitriol)*.....	10 drops
Conserve of roses	1 ounce
Flour of sulphur	half an ounce.

Divide into eight, twelve, or fifteen balls, according to the size of the dog, and give one every day.

[18] In the Philosophical Transactions, No. xxv, p. 451, is detailed a case of a mangy dog successfully treated by transfusing into him the blood from a healthy dog. How far a similar result would follow in other cases, is doubtful.

Or the following:—

Oxymuriate of quicksilver	3 grains
Spring water	3 ounces.

Dissolve, and make twelve or fifteen doses of it, according to the size and strength of the body, and give one every night and morning.

With regard to the manner and frequency of external applications, they should, particularly when liquid, be used every day. The mercurial ones require caution, not only as already insisted on, to prevent the dog from licking them, but also to watch that salivation may not be occasioned by their use. When mercurial preparations are licked by dogs, they are apt to occasion violent and dangerous diahrrœa. Not only, therefore, should the licking be very carefully guarded against; but, when any danger of this kind has occurred, a dose of castor oil should be immediately given; after which, astringents, with a small proportion of washed sulphur in them, will prove useful.—In the use of the unguents, it is necessary to remark, that they are too apt to be smeared over the hair, without being applied at all to the skin itself. It requires, at least, two hours to *dress* a dog thoroughly. The hair should be parted almost hair by hair, and a small quantity of ointment should be rubbed actually on the skin, between the parted hairs, by means of the end of the finger. After every part is done, the hair may be smoothed down, and the dog will appear, when the operation has been neatly managed, nearly as clean as though nothing had been applied. After three or four dressings in this way he may be washed with soft soap and water, and the ointment may be again rubbed in, and again washed off every fourth day, until the cure is complete. In old and bad cases of mange, it will be frequently requisite to continue the treatment a very considerable time, to ensure a perfect removal of the complaint. I once occasioned a very favourite setter, who had had virulent mange five years. to be dressed every day, or every other day, for the extraordinary period of twelve months, before

I could completely conquer the disease: but this determined perseverance effected a permanent cure.

CANKER IN THE EAR.

From confinement and luxurious living, dogs become subjected to various complaints, that evidently arise from the formation of too great a quantity of blood, and other juices; which, not being spent in support of the body, find themselves other outlets. Canker in the ear is evidently produced by this disposition in the constitution to throw off the superfluity accumulated within. In these cases, the dog is first observed to scratch his ear frequently; on looking within which a red granular appearance is seen, from dried extravasated blood. If the complaint is not stopped in this state, it proceeds to ulceration, when the internal part of the ear, instead of being filled with dry blood as before, will be found always moist with purulent matter. The dog now continually shakes his head from the intolerable itching; and, if the root of the ear is pressed, the pus within crackles, and much tenderness is expressed. When canker has remained long, the auditory canal becomes closed, and the hearing lost: now and then the ulceration penetrates deeply inwards, and destroys the dog. I have also known instances where the ulceration has assumed a cancerous appearance, and extended itself over the face.

This complaint appears to have also another source besides over-feeding, heat, and confinement; which is, *the action of water within the ears;* for it may be observed, that all dogs who frequent the water much are more disposed to canker than others. Any kind of dog may contract it thus, particularly when aided by artificial habits, as heat, confinement, and high living; but *Newfoundland* dogs, poodles, and water spaniels, are liable to it when not so artificially treated. Perhaps the length of hair around their ears, not only keeps these parts hot, but also retains the water within, and thus encourages an afflux of fluids or humours, as they are termed, to them. That the water has this

tendency is certain, for I have frequently seen it removed by merely keeping such dogs from the water; that is, in those cases where the feeding and exercise were proportionate, and the fatness has not been inordinate.

The *cure*, it is rational to conclude, must be either simple or more complicated, according to the cause producing the disease. Whenever there is much fulness of habit, and the dog is very fat, or when he has been subjected to much confinement in a hot close situation, these circumstances must be immediately rectified. Abstinence and purgatives will reduce the fat; a cooler situation must be chosen, open and unrestrained; full exercise must be allowed, to assist also in giving another direction to the fluids. In those cases where there are symptoms of a constitutional foulness, which shew themselves by a red itching skin, stinking coat, and mangy eruptions; in such, in addition to exercise, a vegetable diet, cleansing alteratives, and occasional purges, should be given.—See *Alteratives*. In very bad cases a seton may be properly introduced in the neck, and suffered to remain there, until the benefit derived from it is very apparent. When the cankered dog is very fat, occasional bleeding is also beneficial.

External applications are likewise essential to the cure, and in some mild cases are all that are necessary, particularly where it may be supposed that swimming much, or too frequent washing, may have principally tended to produce the complaint. In the early stages, a wash composed of half a drachm of superacetate (*sugar*) of lead, dissolved in four ounces of rose or rain water, is often all that is necessary. A small tea-spoonful may be introduced (previously warmed to a blood heat, to prevent surprise) night and morning, rubbing the root of the ear at the same time, to promote the entrance of the wash into the cavities. In more obstinate cases, it is prudent to add fifteen or twenty grains of vitriolated zinc (*white vitriol*) to the wash; and if, instead of water, a decoction of oak bark is made use of to form the wash, it will greatly promote the end desired. In some cases, acetate of copper (*verdigris*), mixed with oil, has proved beneficial when

introduced in the same manner. In others, submuriate of quicksilver (*calomel*) and oil have produced amendment in the same way. A *very* weak injection of the oxymuriate of quicksilver (*corrosive sublimate*) has succeeded when every other application has failed. A very mild injection of nitrate of silver, as one grain to two ounces of water, has done much good also.

CANKER ON THE OUTSIDE OF THE EAR.

Although this complaint bears the same name with the former, in appearance it is very different. It consists of an ill-disposed ulcer, which is usually situated on the lower edge of the flap or pendulous part of one or both ears, dividing it into a kind of slit. It seems to itch intolerably, and is therefore kept in a continual state of aggravation by the shaking of the dog's head. It is not a little remarkable, that whereas long-haired dogs (as *Newfoundlands*, setters, and water-spaniels) are more subject to *internal canker* of the ear; so smooth-coated dogs (as pointers and hounds) are the only ones, in general, affected with this *outer canker*. Pointers and hounds who have been *rounded*, by having the flap shortened, are less liable to it than those who have their ears of the natural length. From this circumstance it is common to *round* them after the disease has appeared; but it frequently fails to cure, unless the part taken off extends considerably beyond the surface of the ulcerated slit. It is common also to burn out the ulcer either with the actual cautery, or with some caustic substance; but this also proves an uncertain remedy.

In full habits, and where over-feeding and confinement may be supposed to have had any share in the production of the disease, the same rules must be attended to, with regard to the constitution generally, as are detailed for the internal canker. But in other cases an external application is usually found sufficient. An unguent, made with equal parts of ointment of nitrated quicksilver and calamine cerate, may be applied once a-day, carefully securing the ear from the injury occasioned by the shaking of

the head, by a sort of head dress, during its use. Or the following may be tried:—

Oxymuriate of quicksilver *(corrosive sublimate)* very finely powdered	3 grains
Cerate of calamine *(Turner's cerate)*	1 drachm
Sublimated sulphur *(milk of)*	1 scruple.

In some cases, the oxymuriate of quicksilver has become more efficacious in a wash, six grains being dissolved in four ounces of water. Strong astringent lotions are sometimes useful, as alum dissolved in a decoction of oak bark. When the disease proves very obstinate, excision must be resorted to, taking care that the whole, not only of the immediate cracked part, but also of its tumefied edges, are included in the operation.

TUMEFIED FLAP OF THE EAR.

From a similar repletion of habit, and from the same attempts in the constitution to find an outlet to the superfluous humours, or fluids, the flap, or pendulous part of the ear, becomes not unfrequently the subject of another complaint, which shews itself by a tumour, whose prominent part is always on the inner side. It sometimes swells to an enormous size, and occupies the whole of the inner surface of the flap, which then presents a shining tumid mass, so painfully tender and weighty as to prove very distressing to the animal. It is most frequently met with in those dogs whose external ears are long, as setters, pointers, hounds, poodles, and spaniels. *Attempts at dispersing* these tumours always fail; for the collections are, from the first, less phlegmonous than serous; the only mode of relief is therefore to evacuate the contents: but it is too common merely to make a small opening for this purpose, which is almost certain to heal immediately, and a fresh accumulation takes place of the same bloody serum. The tumour ought either to be opened its full length, and a pledget of lint introduced to prevent too hasty a union of the outer edges of the sac; or a seton should be introduced embracing the whole of the tumour, which should be suffered

to remain for a week or ten days. By this means, instead of a discharge of serum, healthy matter will form in a little time; the sides will granulate and unite, and, on the removal of the seton, the external lips of the wound will close firmly and healthily. It is, however, a necessary caution to observe, that it is not prudent to open the tumour until it exhibits its characteristic shining appearance, with evident fluctuation. The future recurrence of the complaint must be prevented by attending to the constitution, as before directed. It is also proper to remark, that all the affections of the flap of the ear are greatly aggravated by the force with which they are rapped against the head by shaking it; the pendulous part should, therefore, always be secured in a kind of cap during the medical treatment.

ERYSIPELAS.

Dogs are subject to two inflammatory affections, not unlike to human *erysipelas*. The one attacks the head, and is described with *Mange*, and with *Tumours* also. The other affects the scrotum, and shews itself by a very red irritable state of the whole bag, which becomes swollen and excessively sensitive; some excoriation is also present, and sometimes actual ulceration; and the poor dog finds it very painful and inconvenient to walk. In this state it should be fomented with poppy head infusion; but no active mange application must yet be applied to it in this irritable state, which would greatly aggravate it: the only ointment proper would be one made with acetate of lead, ten grains, and elder ointment an ounce. As soon as the irritation is abated, then proceed with it as mange. Both of these affections, being the offspring of plethora and too great fulness of habit, require depleting means to assist the external applications.

WARTS IN DOGS.

It is not uncommon for dogs to be troubled with warts on some parts of the body; the most frequent instances of which are the lips, the penis, and the prepuce. These excrescences

may be either cut off, or, when they exist in clusters, they may be sprinkled with equal parts of crude sal ammoniac and powdered savine; which commonly effects their removal.

VERMIN ON THE SKIN OF DOGS.

As vermin are productive of mange, so the destruction of them is a very proper consideration in canine pathology. *Ticks* will adhere closely, and imbed themselves within the flesh; these, it is common to pull away with the fingers, which often makes a dog shy of approaching his owner: if the tick be cut in two, it destroys it, and gives no pain to the dog. *Fleas* irritate many dogs almost to distraction, and render them obnoxious to their owners also; and I hardly know a more frequent enquiry than, how to destroy them, and how they can be prevented from accumulating in the coat. Washing the body well with soapsuds, and directly afterwards carefully combing it with a small-toothed comb, are the most ready means of dislodging these nimble gentry. But it must be remembered, that the previous washing is only to enable the comb more readily to overtake them: the water does not destroy them; for dogs who swim every day are still found to have fleas. These insects are very tenacious of life, and soon recover this temporary drowning; the comb, therefore, is principally to be depended on for their caption before they recover. But as washing is not, in many instances, a salutary practice, and as, in many others, it is a very inconvenient one, so it becomes a matter worthy of consideration how to be enabled to destroy them without these means.

Sopping the skin with tobacco water has been recommended; but it has only a momentary effect, and it not unfrequently poisons the dog.—See *Mange*. Innumerable other means I have tried to *drive away* fleas, but the only tolerably certain one I have discovered, is to make dogs sleep on fresh yellow deal shavings. These shavings may be made so fine as to be as soft as a feather bed; and, if changed every week or fortnight, they

make the most cleanly and wholesome one that a dog can rest on; and the turpentine in them is very obnoxious to the fleas. But, where it is absolutely impracticable to employ deal shavings, it will be found useful to rub or dredge the dog's hide, once or twice a week, with very finely powdered resin: if simply rubbed in, add some bran.

CLASS XII.

Surgical Operations on Dogs, &c.

TREATMENT OF FRACTURES.

The limbs of dogs are very liable to become fractured; but the irritability of the constitution is so much less in these animals than in ourselves, that they suffer comparatively but little on these occasions; and the parts soon reinstate themselves, even without assistance, though in such cases the limb in general remains somewhat crooked.

The *thigh* is a very common subject of fracture; and though it appears a most serious bone to break, yet it is one that, with a little assistance, commonly unites straight, and forms a good limb. When a fracture has happened to the *thigh*, in case the violence has injured the fleshy parts also, so as to produce tension, heat, and inflammation, foment with vinegar and water until the swelling is reduced. When this is effected, apply a plaister of pitch or other adhesive matter, spread on moderately firm leather, sufficiently large to cover the outside of the thigh, and to double a little over the inside of it also. Then attach a long splent upon this, which, if it reach from the toes to an inch or two above the back, will be found to steady the limb very much. This splent must be kept in its situation by a long bandage carefully wound round the limb, beginning at the toes, and continuing it up the thigh; when it must be crossed over the back, continued down around the other thigh, and then fastened. This would, how-

ever, slip over the tail, without other assistance; for which reason it must be kept in its place by means of another slip passed round the neck and along the back.

Fractures of the *shoulder* should be treated in a similar manner.

In fractures of the *fore and hind legs*, very great care is necessary to insure a straight union. As soon as the inflammation and swelling will admit of it (sometimes there is little or none from the first), apply an adhesive plaister neatly and firmly around the part; then fill up the inequalities by tow or lint, so that the limb shall appear of one size throughout, otherwise the points of the joints will be irritated and made sore by the pressure of the splents. After this has been done, apply two, three, or four splents of thin pliable wood before, behind, and on each side of the limb, and secure them in their places by a flannel bandage. In all fractures, great caution must be observed not to tighten the part, by either the plaister or bandage, so as to bring on strangulation of the vessels, which will be shewn by the swelling. Should this, therefore, occur to a considerable degree, the bandage must be loosened, or otherwise mortification may take place. In fractures of the fore legs, a supporting bandage, with side splents, should be kept on a longer time than is necessary for fractures of the hinder ones. If this precaution be not observed, the leg is apt to become gradually crooked, after the apparatus is removed.

In cases of *compound fracture*, that is, where there is an open wound, which penetrates to the divided bones, the same means must be pursued as are practised in the human subject. Irritating pointed portions must be sawed off; the loose ones should be removed; and every means must be adopted to close the wound as early as possible: during which process, the bones should be kept in contact with each other, and supported by soft bandages; until the cicatrization of the wound will allow of proper splents and tighter bandaging. It likewise not unfrequently happens, that a compound fracture, or even a simple one, when neglected,

becomes united by *a soft union;* that is, instead of the callus interposed between the divided ends being bony, it proves cartilaginous only. In such a case the fractured bone never becomes firm; but, on the contrary, when examined, an obscure motion may be felt, like an imperfect joint, which utterly precludes any strength in the limb. I have frequently been consulted on these cases, all of which have originated in the neglect of a proper attention to the fracture at first.

The *treatment* here must be one of two kinds: we may either open the skin opposite the fracture, and, laying bare the bone, remove the soft portion interposed with a fine saw, treating the case afterwards as a compound fracture; or we may insert a seton exactly through the soft cartilaginous portion, and keep it open ten days or a fortnight. After this time the seton should be removed, the wound closed, and the part treated as a simple fracture. Either of these plans will usually prove successful, and firmly consolidate the limb: but, when there is no lapping over of the ends of the bones, the latter is the most mild and convenient, and equally certain of success.

TREATMENT OF DISLOCATIONS.

The joints most liable to this injury are the shoulder and knee before, and the stifle and hip behind. The first step is to examine whether there be a fracture also, which is frequently the case. Under these circumstances the treatment is rendered more complex, from the difficulty of reducing the dislocation, without using too much violence to the limb. The mode of detecting this additional evil is not difficult; for if fracture is present, there will be an evident roughness and grating of the bones, which will be sensibly felt by the hand.

When it is attempted to reduce a simple dislocation, it is evident that the direction in which the dislocated bone is parted from its socket should be first taken into consideration in the means used for reducing it. A moderately firm extension should then be made by two persons; one holding the body and one

part of the joint, and the other supporting the immediate dislocated limb, at the same time giving the luxated end a direction towards its socket. If this extension is sufficiently and properly made, the dislocated bone will slip into its place, and render the limb perfect. When the shoulder is dislocated from the arm, which is a rare occurrence, the disjunction may be forwards or backwards: it occurs generally forwards. The elbow may be dislocated either inwards or outwards; but it happens more frequently inwards, and it is seldom that it occurs without a fracture also.

The hip joint is oftener dislocated than either of the former, and it is most common for the head of the thigh bone to be carried upwards and backwards, which makes the hip of that side sensibly higher and posterior to the other, and renders it easily detected. The muscles of the loins are so strong, that reduction of the thigh is always difficult; however, a firm and judicious extension will effect it. The hind-knee, or stifle joint, which is that next the hip, is the subject of dislocation; and it more frequently occurs inward than outward: this also, from the strength of the surrounding muscles, is often found difficult to reduce; and it is but seldom, likewise, that the elbow is dislocated without a fracture also. When a dislocation has been reduced, a pitch or other adhesive plaister should be applied around the joint to keep it in its place, which may be further assisted by a proper bandage. It may be useful to remark to the inexperienced practitioner, that he can no way detect the presence of either dislocation or fracture so well as by comparing the sound limb or joint attentively with the unsound one.

CASTRATION.

It now and then becomes necessary to perform this operation, from disease of the spermatic chord, or from scirrhous swellings in the testicles themselves. Whenever such a necessity occurs, although castration is not a dangerous operation on the brute subject, yet it requires the assistance of a veterinary or a human

surgeon. Each testicle should be taken out of the scrotum separately, by an opening sufficiently large, when a ligature should be applied, moderately tight only, around the spermatic chord, about an inch and a half beyond its insertion into the testicle; the separation should then be effected by the scalpel or knife between the ligature and testis. It is sometimes performed without the ligature, by making the division of the chord with a red-hot knife, but the other is the neatest and safest mode. It saves the animal much pain if the *vas deferens* be excluded from the ligature; and it is very easy to do so. The *castration of cats* is sometimes practised to keep them from roving, or to increase their size. For this purpose nothing more is requisite than to make a slight opening on each side the scrotum, to slip out the two testicles, and draw them away with the fingers. The rupture alone of the spermatic chord prevents hæmorrhage in them, and no future inconvenience is felt. It is often found difficult to secure a cat for this operation; but it may be easily managed in two ways:—one by putting the head and fore-quarters of the animal into a boot; the other by rolling his whole body lengthways in several yards of towelling; but the former is the most secure and simple, for no animal is more intractable as a surgical patient than grimalkin: though to administer medicines to a pig, beats the cat hollow, as an obstreperous operation.

SPAYING.

This is so cruel an operation, that it should not be practised but when there is a real necessity for it: when it is done merely to convenience the owners, by preventing œstrum and breeding, it defeats its own purpose. There are, however, cases when it is actually requisite; as when some peculiarity occurs that would prevent a bitch pupping with ease and safety; or when she has been connected with, and is found to be pregnant by, a dog much larger than herself: in which case, as she would probably die in labour, it is not improper to remove the puppies in the third or fourth week of gestation. The operation is performed

by making an opening in the flank of one side, when the ovaria, being enlarged by pregnancy, are readily distinguishable, and may be drawn out and cut off, first one and then the other; securing the ends by a ligature lightly applied to each surface, but leaving the threads without the wound, which is to be closed by stitches and bandaging. Farriers often apply no ligature, but content themselves with simply sewing up the wound, and no ill consequence seems to ensue. Bitches, after they have been *spayed*, become fat, bloated, and spiritless, and commonly prove short-lived: for Nature usually punishes any considerable deviations from her common laws; and it is observed among animals, when the great work of propagation is artificially stopped, particularly in the female, that, her sexual secretions failing to be rightly applied, and her reproductive organs remaining unemployed, the body becomes diseased.

CANINE OBSTETRICS.

DIFFICULT PUPPING.

Great numbers of dogs die every year in bringing forth their young: a life of art has brought the human curse upon them, and they seem, in common with their female owners, to be doomed to bring forth in sorrow and pain. When bitches are at heat, great care should therefore be taken to prevent their intercourse with dogs much larger than themselves; otherwise the size of the father influencing the size of the progeny, they become disproportionate to the parts of the mother, and she is often found unable to bring them into the world: thus it is that cats, being all of nearly one size, seldom die in kittening. All dogs, that are much domesticated and confined, appear particularly subject to difficulty in bringing forth; consequently during pregnancy much exercise should be given, as nothing tends more to easy parturition than full exercise. Sometimes the constitution itself, in these tender and artificial breeds, is not equal to the exertion of labour; and sometimes false presentation increases the ob-

struction. Whenever a difficulty in pupping occurs, which has existed more than four or five hours, the bitch should be examined by means of a finger passed up the vagina; and, if any portion of a pup should be found to present itself, so as to be within reach of the finger, a skein of worsted ought, if possible, to be fastened around it; and, during the *throes* or *labour pains* of the animal, it should be gently drawn away. If it cannot be reached in this way, a little longer time may be allowed; but, after all, should it not advance, a pair of forceps may be used to assist the extraction. It is a good practice to give a laxative as soon as any symptoms of pupping appear; and, when delivery seems much delayed, it will be prudent, in all cases, to bathe in warm water, and to give nutriment if the labour is protracted: occasional doses of laudanum united with æther must be given if any convulsive appearances come on. The patience of bitches in labour is extreme, and their distress, if not relieved, is most striking and affecting. Their look is, at such times, particularly expressive, and apparently imploring.

A wish to relieve them has very frequently engaged me in performing the Cæsarean operation; but I never succeeded in any one instance. I attribute this failure, however, principally to the delay in the time, which humanity suggested; and not to the nature of the operation altogether, which is, however, sufficiently dangerous. Whenever pupping is protracted considerably, the young are found dead; and in those cases where they have been so for some time, from the effect of accident, they become the sure occasions of a protracted labour. The dead fœtus often comes away piecemeal, sometimes many days after the natural time, and occasions a very fœtid ejection until the parts have reinstated themselves. A very mild solution of the chloride of soda, thrown up the vagina, will sweeten the discharge, and hasten the expulsion of the remaining young. If the retention should be continued to a very dangerous length, the same might be given by the mouth with advantage, in very mild doses.

From a wish to rear too many young ones, persons are apt to

overload the mother; and thereby they often lose both parent and progeny. The mother seldom shews the effect of the overburthening at first; but as the whelps begin to increase, and to require more supply, her constitution becomes impaired, and the usual marks of rapid exhaustion, convulsions, make their appearance. See this subject fully described, with the medical treatment of it, under the article *Epilepsy*. It is evident, therefore, that judgment should be exercised in this particular; and that the mother should have no more young left to be suckled by her than her constitutional powers are equal to. Such as are strong, healthy, and have before brought up young, may find supply for four or five: delicate ones are sufficiently burthened with three; many can only bear two: but in all cases feed the suckling bitch well, both for her own sake, and the future health, strength, size, and perfection of form of the young.

CROPPING.

This custom is one that does not honour the inventor; it may be readily asserted, that nature gives nothing in vain. Beauty and utility appear in all, but in unequal degrees: in some, beauty is preeminent; while in others utility appears to have been the principal consideration. That must, therefore, be a false taste which has taught us to prefer a *curtailed* organ to a perfect one, without gaining any convenience by the operation: the custom being, however, now fixed, directions are proper for its performance. Young dogs should not be cropped before the fourth or fifth week of their age: when the ears are cut earlier, they sprout again, and the form of the crop cannot be so well directed as when the ear is more developed. It is a barbarous custom to twist them off by swinging the dog round, and the crop never succeeds so well as when made by scissors, which should be large and sharp.—In cropping terriers, begin at the hinder root of the ear, close to the head; and when this cut is carried through, one other cross cut from the root at the front of the head, if managed with dexterity, will be sufficient, and will make an excellent fox crop, without torturing

the animal with numerous trimmings. The less oblique the second cut is carried, the more sharp and foxy will the crop prove: the portion cut off, if laid on the remaining ear, will serve to direct the operation in that also. A rounded crop may be made at one cut. The cropping of pug puppies is the most painful of any; the cuts must, in general, be repeated, and carried close to the root of the ear; as upon the total absence of external ears (which gives an appearance of roundness to the head) is the beauty of the animal *supposed* to consist[19]. It is best to crop puppies in the absence of the bitch; for it is erroneous to suppose that her licking the wounded edges does them good; on the contrary, it only increases their pain, and deprives the young animals of the best balsam, the blood that flows from them.

Rounding, which is a species of cropping, is also performed on pointers and hounds, both as a prevention and cure of the canker; but in rounding, only a portion of the flap is taken off. When this operation becomes absolutely necessary for the cure of canker, from all other means having failed (see *Canker*), care should be taken that the cutting may go *beyond* the extent of the ulceration, or the disease will return: when rounding is performed on a number of dogs, it is, in general, done with a rounding-iron.

Tailing.—When a dog is cropped, it is usual also to cut off a portion of the tail. Dog fanciers, as they are termed, commonly bite it off; but it were to be wished that a larger portion was added to both their knowledge and humanity. The tail does not grow materially after cutting, therefore the length may be previously determined on with sufficient accuracy, and cut off with a pair of sharp scissors. If the ears and tail are cut off at the same time, it is prudent to tie a ligature about the tail, to prevent

[19] It is not a little surprising that this cruel custom should be so invariably practised on pug dogs, whose ears are particularly handsome, and hang very gracefully. It is hardly to be conceived how the pug's head, which is not naturally beautiful, except in the eye of perverted taste, is improved by suffering his ears to remain.

the effusion of blood, as sometimes the bleeding, from both ears and tail together, will weaken the animal too much, and early distemper may follow; but, when the tail alone is cut, no ligature is necessary. When a ligature is used, neither tie it too tight, nor suffer it to remain more than twelve hours. On the twisting off either the ears or tail, I will waste no invective; for if the cruelty does not strike the performer, I am sure no assertion of mine, that it is far inferior in every point of view to excision, and has for ever deafened many it has been practised on, will be attended to.

WORMING.

This operation the veterinarian will probably be yet often called on to practise, and the sportsman may still for a few years indulge in the error of deeming it necessary for his dogs; it therefore finds a place here, although I am not certain but that my pages would have been more honoured in the omission than by the insertion of it.

Method of worming dogs.—Secure a large dog on his back on a table, bench, or form; one of a middling size may be held in the lap of an assistant; a small one may be conveniently taken into that of the operator. The mouth being held open by means of two pieces of tape—one embracing the part immediately behind the *upper*, and the other, that *posterior* to the lower canine teeth—draw the tongue from the mouth, when, exposing its under surface, a cuticular fold or eminence will present itself, occupying its median line from the point to the base: open this with a lancet through its whole extent, which will expose a minute fibrous cord. Pass a blunt-pointed probe under it, and, carrying the instrument from one end to the other, detach the cord from its adhesions; which done, divide it at one extremity, and carefully drawing it forwards, with a tenaculum, divide the other also. The uninitiated in sporting mysteries, may smile at all this minuteness of detail, and recommendation of caution, in the *division* of a *line* of *skin*, and the *extraction* of a *thread* of ligament;

but all this is actually necessary to satisfy the prejudices of those who put faith in the operation. For with them, it is essential to the prospective benefits of it, not only that the whole of the *worm* (for which read frænum), should be extracted; but that, if possible, it should be done in one continuous mass.

In the removal of this cord by huntsmen, game-keepers, &c., the violence used in stripping it off, puts its fibrous substance so much on the stretch, that when extracted its elasticity making it recoil, gives it somewhat the character of the contraction of a dying *worm;* and we may yet read of this appearance, and its general form being adduced, as proofs of its vermicular identity. And although now no informed person gives credence to its being other than a portion of the canine tongue; yet there are many sporting characters, of education and ability, who still lend themselves to an opinion, that there is some enigmatical property inherent in this part, which renders its retention dangerous; by making the unwormed dog the subject of acute rabies, but the wormed one the subject of the dumb variety. Of a piece with this palpable error was that of Marochetti's vesicles in the same vicinage; which being also with him the hiding-place of the rabid virus, it became as necessary, according to his doctrine, to destroy them, as it was with the ancients (and yet remains with some of the moderns) to remove the *worm*.

Now, as Marochetti's *alleged discovery* originated with the Greeks, it would seem that the tongue was early destined to be considered, in one part or other, the particular seat of rabies. It has, however, fared very differently with these two errors; for while the vesicles are almost entirely discarded from every mind, a certain connexion between this organ and rabies, modified, indeed, from that of the ancients, indulged in before the time of Pliny (of the existence of an actual worm under the tongue)[20], yet

[20] "La découverte du Docteur Marochetti, en supposant que c'en soit une, n'est peut-être pas aussi nouvelle qu'on pourrait le penser; du moins est-il reconnu que dupuis long-temps les Grecs tiennent que, lorsque quelqu'un a été mordu par un animal enragé, il se manifeste sous la langue, vers le neuvième jour, de petites vésicules désignées sous le nom de *lysses*, siégeant près du frein, et

still exists. This modification, although it denies the existence of a worm, yet acknowledges the presence of a part, the removal

particulièrement à côté des veines. D'un autre côté, le plus ancien nom connu de la rage est celui de *lyssa* ou *lytta*, nom d'un ver qu'on a cru trouver sous la langue des chiens, et auquel on attribuait le développement de la rage; mais ce prétendu ver n'est qu'un petit ligament particulier aux chiens, et qui sert à faciliter à leur langue l'action du lamessement, comme Morgagni et Heydecker l'ont fait voir. Ceux qui désireront d'autres éclaircissemens sur cette circonstance d'organisation et l'état pathologique que peut-être on lui présume, n'ont qu'à consulter le *Journal de Médecine Vétérinaire et Comparée*, tom. III, pag. 249, et tom. IV, pag. 153; ainsi que le *Journal Pratique de Médecine Vétérinaire*, tom. I, pag. 495; et la *Bibliothèque Physico-économique*, numéro de Fevrier 1817, pag. 146."

On the general structure of the frænum, and its supposed connexion with rabies, see Morgagni *De Sedibus et Causis Morborum*, tom. I, p. 67. Venet. 1761. Pliny likewise remarks on this, "Est vermiculus in linguâ canum, qui vocatur lytta, quo excepto, infantibus catulis, nec rabidi fierent, nec fastidium sentiunt."—*Hist. Nat.* lib. xxix, c. 32. Paris, 4to, 1685. The classic author of the Treatise on Greyhounds also quotes the uncertain author of the Cynosophium, Ἐν τῷ κάτω μέρει τῆς γλώσσης αὐτοῦ, δεσμοῖς τισι κατέχεται· γίνεται δὲ εἶδος ἐκτύπωμα σκώληκος ὅμοιον νεύρῳ λευκῷ, πρὶν ἢ οὖν αὐξήσῃ καὶ λάβῃ πάντατον λαιμὸν τοῦ κυνὸς ἀποκόψω ἐκ τῆς γλώσσης αὐτοῦ καὶ θεραπεύσεις. He adds also, from the *Venatici Scriptores*, an additional proof of the existence of this opinion:—

Plurima per catulos rabies, invictaque tardis
Præcipitat letale malum: sic tutius ergo
Anteire auxiliis, et primas vincere causas.
Namque subit, nodis quâ lingua tenacibus hæret,
(Vermiculum dixêre) mala atque incondita pestis.
Ille, ubi salsa siti percepit viscera longâ,
Æstivos vibrans accensis febribus ignes,
Moliturque fugas, et sedem spernit amatam.
Scilicet hoc motu, stimulisque potentibus acti,
In furias vertêre canes, ergo insita ferro
Jam teneris elementa mali causasque recidunt*.
Nil tamen usque adeo prodest, ac prima sub ipsum
Principium morbi rescindere semina ferro.
Nam quâ parte imo conjungi lingua palato
Cernitur, et fauces nativo concolor auro
Occupat, in rabiemque feros agit usque Molossos
Vulnificus vermis, suffunditque ora veneno:
Quem si quis potuit ferro resecare, potentem
Is tanti abstulerit causam, stimulumque furoris†.

* Grat. Falisci Cynegeticon, 383.
† Hier. Fracastorii Alcon. 169.

of which, while it cannot cure the disease in the individual, or prevent it, yet it can hinder his communicating it to others.

I would fain hope that the description I have already attempted of the rabid malady, will demonstrate that any state in which the tongue of the dog may be found, is not *special;* that it is only a state common to all the parts comprised in the fauces, pharynx, and larynx; and also of the bronchiæ and stomach. I have endeavoured to prove it a *specific* inflammation of all these organs, particularly affecting their nervous tissues; and which we know, by the symptomatic paralysis observed, and the morbid sympathies present. It is impossible, therefore, that all these parts can be generally affected, but that so large and so sensitive a contiguous and even continuous mass as the tongue, must receive its full share of the morbid derangement. We have seen that, in one variety of the disease, the *respiratory* nervous tissues seem to suffer particularly; and that in the other (called dumb madness) the *digestive* are principally affected; in which case, the virus appears to act with more than ordinary violence on the whole alimentary track; and, as might be expected, with the vast tumefaction which follows (in the fully formed stage of the disease, but not until then); the dog finds a difficulty in closing his mouth, with an effort sufficiently quick and powerful to *bite.* This state of madness being as common as the raging kind, it must frequently occur to dogs which have been wormed; and when such is the case, the lessened danger from the swollen state of the mouth, and the actual diminished disposition to do mischief in this variety of rabies, is attributed to the *worming:* I, however, hope to be able to shew, that *worming is most erroneously considered a preventive against madness.* The error itself may pro-

Gesner, however, jealous for the reputation of the Greeks, observes that their medical writers did not actually believe that this substance was a worm; but that by lytta, they understood the disease itself, and not this suspected portion of tongue. The Cynosophium in proof of this has, Νοσήματα μέντοι κυνῶν τρία· λύσσα, ποδάγρα, κυνάγχη ἀλλ' ἡ μὲν ποδάγρα οὐ πάντη ἀνάστατος, ἡ δὲ κυνάγχη δύσατος, ἡ δὲ λύσσα εἰς θάνατον φέρει.—Cap. viii, sec. 53.

bably be regarded as a very innocent one, and it therefore may be asked, Why take such pains to combat it? Without laying any stress on the propriety of combating all error whatever, I would inquire, Is the error really a harmless one? I could readily quote more than a dozen respectable authorities, who urge the *entire freedom from risk of rabies by worming*. Among them I would particularly instance the writer of that classic morceau, the *Treatise on Greyhounds*, where we find—"As a preservative against mischief, I can bear my testimony to its efficacy. I have seen many and repeated instances of its preventing any injury whatever in the *strongest paroxysms* of the complaint; and I have confined dogs, who had died mad, *and had been wormed*, with others of little value, for the express purpose of the experiment, without the latter receiving any inconvenience whatever."

Mr. Daniel, a writer of no mean celebrity, has been at much pains to enforce the same opinion; and after these and many other writers of repute, can we wonder that lesser sporting satellites in abundance are seen to disseminate and keep alive this mistaken notion?

The dangerous tendency of the error I have witnessed in many instances. I have very often had brought to me, or I have been sent for to see, dogs labouring under the *dumb* variety of madness, which having *bitten* other dogs (and sometimes the owners also), the circumstance has been the occasion of much surprise, because their owners being fully impressed with the opinion that wormed dogs (as they knew their own to be) were insured from being at all dangerous, they had taken no precautions whatever; by which, either in their own persons, the persons of others, or in their animals, they had incurred this dreadful risk. I again assert, that I have known this error to have lulled the owners of wormed dogs into a fallacious security which they have dearly paid for *in very many instances*. Can it, therefore, be called other than a very dangerous opinion to maintain? and are we not called on imperatively, by the cause of truth and humanity, to combat it? and the more so, as the very weight of influence

which authorities of such respectability give to their statements, makes them pass for dogmas unnecessary to be further examined. Sir W—m C—n says, "he can bear testimony to the efficacy of worming; and that he has seen many and repeated instances of its preventing any injury whatever in the *strongest paroxysms of the complaint.*"

But unfortunately for the sufferers, however true it may be, that when dumb madness is *fully established,* in many instances, the dog really cannot bite; yet it must be considered that it is not from this stage of the disease only that danger is to be apprehended; but it has been shewn that, for two or three days previously to the engorgement of the mouth, there are yet actual symptoms characteristic of the complaint, which are almost invariably, I might say invariably, present. The tumefaction of the throat is always preceded by a certain quickness of manner; and if there be not an actual mischievous disposition apparent, yet there will be often seen some irritability of temper, which may make such a dog resent a fancied affront, or fall on any of his companions he was not fond of—nay, his very caresses might sow the seeds of death, if they fell on an abraded surface; and in kennels we know how frequently this variety in particular commences by licking the penis, anus, or vagina of others. I have not the smallest doubt of the complete veracity of the experiment conducted by Sir Wm. C———n, of confining rabid dogs, which had been wormed, with others, and which have not become rabid; but if this praiseworthy search after truth, displayed by the ingenious Baronet, would stimulate him, or any other experimentalist, to inoculate a number of both wormed and unwormed dogs with rabid virus, and to shut up with each inoculated dog a certain number of others not endangered, the matter would soon be brought to an issue, and the truth would be imperatively forced on the minds of those who thus err. In the first place, the dumb variety, or the raging variety, would either of them appear indiscriminately; and equally so in the wormed and in the unwormed subject: no preference for either

state of the disease would be seen in the mutilated or the unmutilated tongue. In the second place, it would be found, that of those becoming dumb-mad, the whole, probably without an exception, (if the experiment were made with others than lap-dogs, or the meek and gentle breeds of close domestication) would be found capable and inclined to inflict a fatal inoculation on the dogs around him, in the early stage of the complaint. This, from the evidence of innumerable facts, I am confident would be the result; and it is this evidence so drawn, that emboldens me to assert, *that worming is altogether a fallacy,* and is no immunity whatever against the propagation of the disease by biting.

But this is not the whole of the error; for further to establish the complete efficacy of worming as a preventive of communicating the disease in this way, it is necessary to maintain, that every wormed dog, himself becoming rabid, must of necessity have the dumb variety only; otherwise it is self-evident, the security is only partial and contingent. To maintain this, the advocates must, like the ancients, consider the under surface of the tongue as a most enigmatical part indeed: but is this the case? So far from there being any connexion between this operation and the variety of rabies which may occur, I am prepared to assert (and I believe I may assert for Mr. Youatt also, whose opinions are on public record), that out of the many hundreds, or rather thousands of rabid dogs we have seen, we never observed that there was any priority of election for either variety in the wormed or unwormed. It was very often a matter of inquiry with myself, and I believe equally with Mr. Youatt, when we met with the dumb variety, Had this dog ever been wormed? and we were so often answered in the affirmative, as, without other proof, to be fully aware of its inefficacy. The same has fallen under the notice of many other persons; and I have met with several observant sportsmen, who, having been so often deceived by its unfounded pretensions, now never practise it. These facts ought to set the matter at rest; for they are of constant occurrence, and as indisputable as frequent.

Let us, however, for a moment call philosophy to our aid; and then inquire how this matter can be otherwise than as we state it. Let us try it by the aids of anatomy and physiology first. Before we proceed to an examination of the part, we will again review the various opinions entertained of it. The ancients universally, and many of the moderns also, have considered it as the specific *seat* of the virus: the most absurd of them regarded it as a *poisonous reptile:* some, convinced of the error of *distinct life* in the part, have yet continued to look on it as the *germ of madness,* which required only the fructifying power of the rabid poison to bring forth its malignant fruit. Others there are whose acuteness, though too great to allow them to adopt opinions so truly absurd, have permitted themselves to be sufficiently led astray by sporting authorities, and by circumstances inapposite, as well as viewed through wrong media, to allow, with Sir Wm. C———n, the immunity granted by worming to be complete, but wholly derived "from a *mechanical cause;*" that is, "the tongue, from being swollen, hangs out of the mouth, and, having lost its natural check by the removal of the ligament immediately under it, the dog cannot withdraw it into the mouth to bite." There is at once so much simplicity and apparent probability in this last mode of reasoning, strengthened as it is with facts, which, by a cursory observation only, might seem to bear immediately on it, that renders it particularly calculated to keep alive the error. Viewing it likewise in this way, and connecting it with the circumstance, that many, nay most dogs, with the taciturn rabies, have some difficulty in biting *in the advanced stage of the disease;* we can hardly wonder that this accomplished sportsman, as well as many others, should have adopted the opinion stated. But if the experience of observers, whose opportunities of marking facts has been an hundred-fold greater than their own; and if also the attention of such observers has been specifically directed to this subject, and has turned out to be in direct contravention to the opinion so formed, and to the facts so mistaken; it would then bespeak an adherence to error not

altogether becoming enlightened and candid minds to continue to advocate so unfounded a doctrine.

This pseudo worm of the ancients, and *stumbling block* of the moderns, has nothing unique about it: nor, as it exists here, is it more than a type of many other integumental folds intended as *bridles* or *stops* to the further extension, or to the displacement of parts: thus we have, beside the *frænum linguæ*, the f. labiorum; the f. preputii; f. clitoridis, &c. &c., which are all duplicatures of the surrounding membranes, purposely thus folded to strengthen the adherences of such parts as are particularly liable to be put on the stretch: and that such is their specific purpose, is further demonstrable by some of them being adventitiously strengthened by denser matter placed within the duplicature which constitutes the bridle. In the dog's tongue, as already shewn, a fasciculus of tendino-ligamentous fibres is enveloped within the membranous fold, and which fibres, being attached by their extremities to the apex and base of the tongue, assist in operating its motions generally; but principally in preventing a retroversion of it down the throat, as might otherwise happen in a convulsive spasm: it may also assist, but in a minor degree, the lapping of fluids, as suggested by Casserius: and so far from this part being peculiar to the caninæ, the fact is, that it is found in all animals where this organ is very moveable or extensile. The human frænum linguæ is more minute; but it is more strikingly apparent, and in structure more dense even than that of the dog: and here so evident is its use, that it would be torturing conjecture to devise any other purpose for which it could be placed there.

When, therefore, the more ingenious and intelligent of the favourers of worming urge its adoption on the grounds of the *mechanical properties* of this part, they may seem, on a superficial view, to take 'vantage ground; but it is on a superficial view only that it can so appear. I have repeatedly examined the frænum in the raging variety, both in living and in dead subjects. I have likewise done the same in the dumb variety; and in both,

as regards the frænulum, the appearances were the same; for the cicatrix made by the removal of it nearly filled up the linear dimensions of the median line to a similar appearance with that of the unwormed dog. But I would ask, If the removal only of this fasciculus of fibres acts so powerfully as to wholly prevent the tongue, when swollen, from being withdrawn into the mouth; how is it, that the removal of it in worming, is never found to offer the smallest impediment to the lapping of fluid afterwards? The frænum is a salutary check to the lingual motions generally, but to all retroverted ones particularly; yet it has nothing whatever to do with the partial incapacity to bite, as is most readily seen by the attentive observer: for the dog afflicted with the worst paroxysm of rabies even, can in all general cases lap; consequently he can also withdraw his tongue within his mouth: it is the doubling up of his tongue into a spoon-shape, to carry the fluid there, that he cannot effect; but which difficulty is not the result of the loss of the frænum, but from the general engorgement of the base of the organ in common with all the parts concerned in deglutition throughout. It is true that this tumefaction, usually present in the *advanced stages* of dumb madness, does prevent many of them from biting; but it does so equally in the unwormed as the wormed dog, as I have witnessed and have particularly observed in a great number of instances. There is not the smallest difference between them. Further also; the wormed dog, in every instance, can bite during the *first stage* of the disease. I have seen scores of such which have fatally bitten others during the early part of the attack; and many can, by an effort of much excitement, as a stick offered to them, &c., bite throughout the whole continuance of it.

I shall close this appeal by a summary of conclusions, premising once more on the absurdity of this error, that, if it has been proved (and nothing is better substantiated) that the inoculation by rabid virus gained from either variety of the disease, indiscriminately produces either kind of it; how is it that the removal of the lingual bridle only, whose effect is acknowledged "to

be mechanical only," is able to determine the form of the disease; seeing that the characteristic marks of dumb madness are not confined to the mouth, but consist of a series of morbid developments, extended throughout the alimentary canal; and even affecting the cerebral functions differently to what is done by the acute or raging kind? How, I would ask, is all this to be effected by the removal of a ligamentous portion of the tongue. Dumb madness, in particular, is not therefore the necessary result of worming, when a dog has been successfully bitten. Dumb madness neither precludes a dog from lapping or biting, *in its early stages;* nor does it invariably do so in its worst stages. Worming, therefore, I positively affirm, is no safeguard whatever against the dangerous consequences of rabies: and the practice of it is not creditable to our present enlarged state of information.

Worming is sometimes likewise practised on puppies, to prevent their *gnawing* and *tearing* every thing around them, which they are instinctively stimulated to, like the human infant, to assist the development of the teeth, and also from wantonness and a love of play; and although, without doubt, worming, by making the mouth sore, may for the time prevent such gnawing, yet the dog recurs to it again as soon as the part is healed. I therefore think it a useless operation here also.

ACUPUNCTURATION,

Or the *puncturing* some parts of the body with a pin, has been practised with some appearance of benefit in chronic rheumatisms, and also in the chorea of dogs. In a long-continued rheumatic weakness of the loins and hinder extremities, a needle was introduced nearly half an inch into the muscular masses in three separate parts of the back opposite the psoæ muscles, with but trifling amendment; but the introduction of it into the inner and outer surfaces of the thighs, rather more than half an inch, was more beneficial. The practice, therefore, deserves a trial, where other means have failed.

BLEEDING.

Dogs are much benefited by bleeding in many diseases, as inflammations of the lungs, stomach, bowels, &c. In some cases of mange, in the early stage of asthma, and in the epilepsy of repletion, bleeding is very useful also. Dogs may be conveniently bled by the jugular or neck vein, with a fleam, or with a common lancet; but the latter is much preferable. A ligature being put round the lower part of the neck, and the head being held up, the vein will swell and protrude itself on each side of the windpipe, about one inch from it. It will, however, be necessary previously to cut the hair away, if it be very thick; after which, the puncture can be easily made with a lancet, the operator leaning over the dog. Nothing is necessary, in general cases, to stop the bleeding, but to remove the ligature; nor is any pin, plaister, or bandage, requisite for the orifice. When circumstances such as the want of a regular operator, or when the amateur is called on to deplete his own dog suddenly, as in the field, when the means of venesection by the neck are not at hand; in any such case the ear may be punctured, or an incision may be made on the inner side of the flap of it, choosing, if possible, the course of a vein for the puncture, but avoid passing the instrument through the ear. Or the tail may be cut in desperate cases; but, when this is done, it is better to cut off a small piece than to merely make an incision underneath; for I have seen, when this has been injudiciously done, the whole tail in a state of mortification. The veterinarian will find it necessary occasionally to practise bleeding in the cephalic or superficial brachial vein, the plate vein of farriers; choosing the branch that passes along the front of the biceps, toward the shoulder point. In all lamenesses of the fore limb, the depletion is best made here, particularly in violent shoulder wrenches. Strains of the loins, extensions of the articulations of the thigh with the body, and with the leg also, as well as muscular and ligamentous extensions of any parts of the hinder limb, should be treated by extracting blood from the sa-

phena vein, which is found traversing the inner and fore part of the hock, and an inch and a half or two inches above may be fixed between the index finger and thumb of one hand, and then punctured by means of a lancet in the other.

The quantity of blood drawn should be regulated by the size of the dog: for a very small dog, one or two ounces are sufficient; for a middling sized dog, three or four ounces; and for a large dog, five, six, seven, or eight ounces, according to the size and strength of the patient, and the nature of the disease he labours under.

BLISTERS, OR IRRITANTS.

These are very valuable medicaments in many of the complaints of dogs, and in some instances they cannot be done without. Irritants is a more critical term than blisters, for these matters do not usually vesicate and detach the skin, as in the human subject; but they irritate and inflame the surface sufficiently to answer every purpose required. Irritating substances for dogs are various; but the best is that, in common use for the human subject, which is made of Spanish flies, applied as a *plaister*, and carefully secured by a bandage. When, however, it is intended, as in very active inflammations, to raise a speedy irritation, blistering *ointment* should be made use of; and, to render it still more active, it may be thinned with oil of turpentine. This should be well rubbed into the skin, first clipping the hair close, and securing a covering carefully over the part after: the application may be repeated, in urgent cases, every three or four hours.

A very quick inflammatory effect on the surface may also be raised by common table mustard spread over any part. In inflammations of the stomach, and particularly of the bowels, an excellent method of irritating the skin may be practised by means of a sheep's or any other hide newly stripped off, and immediately applied and secured to the part. The skin of the patient should, however, be first well stimulated with oil of turpentine. In strains of the joints, and all muscular and liga-

mentous extensions, after the acute symptoms of the inflammatory stage are gone off, blisters will be found very useful in promoting absorption of the lymph deposited, or, in other words, of the remaining indurations, and in the restoration of the parts generally. But when blisters are used, the dog must be very carefully muzzled: not in the usual way, however; for by mere strapping, however close, the dog will insinuate his tongue out of his mouth to lick the part. Nothing but a fine net-wire muzzle will effectually prevent danger; and for very large dogs, I have made use of a perforated tin one.

CLYSTERING.

Clysters are of much importance in many cases of sickness in dogs. They become a most powerful stimulant to the bowels in obstinate obstructions, and in many instances of this kind they alone can be depended upon for the purpose: for, when the obstruction arises from an accumulation of hardened excrement, situated far back in the cœcum or rectum, cathartics by the mouth are useless, and, indeed, increase the danger, by forcing more of the contents of the bowels towards the obstructed part. In inflammations of the bowels, bladder, kidnies, or womb, *clysters* have the additional advantage of acting as a fomentation. Cases wherein they may be beneficially used as *nutriment* likewise, occur very frequently: as when there exists so obstinate a sickness, that nothing will remain on the stomach; or when food cannot be passed by the mouth, as in locked jaw, in fractures, or in wounds of the mouth, face, or throat. In all such instances, clysters of broth, gravy, or gruel, will afford a very considerable quantity of nourishment: a small proportion of opium, as twenty drops of laudanum, may be given in each, to assist in retaining it within the bowels. Astringent clysters, as starch, rice water, alumine whey, infusion of red roses, or of oak bark, are useful in violent loosenesses. Purging clysters may be made of veal or mutton broth, with a portion of salt or moist sugar added:

the effect may be still further quickened by adding castor oil or Epsom salts.

Clysters are very easily administered to dogs, and no apparatus is so convenient for the purpose as the patent syringe of Reid: a good domestic apparatus is found in the common pipe and bladder also. The liquid used should be warm, but not hot; the quantity from three ounces, to six or eight, according to the size of the dog, &c.: the pipe should be greased previously to its introduction, and the tail held down a minute or two after its removal.

BATHING.

Both the warm and the cold bathings of dogs are attended, in many cases, with the happiest effects. *Warm bathing* proves an excellent aid in many complaints, and in some it is of itself a sovereign remedy. In inflammations, particularly of the bowels, it is highly proper. In lumbago and other rheumatisms, which are very common to dogs, it is attended with the best effects. In obstinate costiveness, it will often relax the bowels when every other remedy has failed. When internal injuries have been received from accidents, it unloads the vessels and prevents inflammation. In pupping, sometimes great difficulty is experienced; in which cases the warm bath frequently relaxes the parts, and the young become more easily expelled. In convulsions and spasms it is also excellent. In obstructed urine, from an inflamed state of the neck of the bladder, it has proved a most efficacious remedy.

When a *warm bath* is used for a dog, the *heat* should be regulated according to the case. In inflammations it should be considerable, and in rheumatisms also; but it must be remembered that, from habit, many human persons can bear, without inconvenience, a heat that would be most distressing to a dog; consequently, when it is attempted to ascertain the heat by the hand alone, this circumstance should be considered. 100 to 102 degrees of *Fahrenheit*'s thermometer is a very considerable heat to dogs, and is only proper in violent inflammations and active

rheumatisms. For internal bruises, for spasms, or as a relaxant, 96 to 98 degrees is sufficient. The *continuance* in the bath is also to be regulated according to circumstances. To relax, as in the labour or pupping of bitches, in slight spasms, or in cases where the animals are very weak, or when the bathing is to be renewed daily, ten minutes is a sufficient time. But in suppression of urine, in violent spasms, costiveness, inflammatory affections, particularly of the bowels, fifteen or even twenty minutes are not too much: should faintness and weakness come on, which will be seen by the dog's panting and distress, let him be removed from the water, particularly if it is a case wherein fainting would be prejudicial, as in a pupping bitch, &c. The water bath should come all over the animal, except the head; and when any one particular part is more especially affected, that part ought to be rubbed, during the bathing, with the hand. The dog being removed from the water, the utmost care should be observed to avoid his taking cold by exposure. He should be first rubbed as dry as may be by a change of cloths, and then be put into a clothes-basket, wrapped up in a blanket, and there confined till thoroughly dry.

Cold bathing is also, in some instances, very useful, particularly in the spasmodic twitchings that succeed distemper; and in some other cases of habitual weakness, as rickets, &c.: but, for dogs in health, I am convinced that bathing is not so salutary as is often supposed.—See the article Washing of Dogs.

CUTTING OF CLAWS AND SCALING OF TEETH.

Puppies are frequently born with *dew* claws; sometimes they are double. The dew claw is attached to a rudiment, more or less developed, of an additamentary phalange or toe, situated on the inner side, one to each foot, distinct from, and considerably above, the other toes. These additamentary toes are frequently unattached to any corresponding metacarpal or metatarsal bone, having only a ligamentary union; but whether there is any bony attachment or not, it is always prudent to cut them off in a few days after birth, otherwise they become very troublesome as the dog grows up; for the claw or nail attached to the end of each

frequently turns in and wounds the flesh; or, by its hook-like shape, it catches into every thing the dog treads on.

The *horny claws* or *nails* of the true toes are also subject, when dogs have not sufficient exercise, to become preternaturally long, and, by turning in, to wound these toes likewise, and lame the dog: such claws, when grown too long, are often attempted to be cut off with scissors; but unless the scissors used are very short and strong, they are apt to split the horn. It is better, therefore, to saw them off with a very fine and hard cock-spur saw, and then to file them smooth; avoiding to cut them too close, or the vascular part may be entered on, and much unnecessary pain given to the animal. Some dogs require their nails to be cut every two or three months, or even oftener; otherwise they become very lame. Occasionally one claw is found to be surrounded by a swollen and ulcerated portion of toe, as is further enlarged on in Mange. The subject is only introduced here for the purpose of observing, that when such a case has proved very obstinate, I have sometimes found that the insertion or root of the claw has itself become morbid; and then has assisted to keep up the irritation: in which instance it is necessary to the cure to extract the claw, which a pair of strong forceps will usually be sufficient to effect; so diseased has the connecting fibres become.

Scaling of Tartared Teeth.—The difference between the supply of nutriment, and the exertions of lap-dogs, and of those that are much confined, is such as to derange the digestive functions in many ways; and in none does it appear more conspicuous, than in the accumulation of tartar around their teeth: See *Diseases of the Bones*, p. 178. As this state invariably ends in the destruction of the gums, so the teeth ultimately fall out: the breath of the dog is also rendered insufferably fœtid by it. The tartar must, therefore, be removed, which is not difficult, by means of a set of human teeth scaling instruments; and as the tartar accumulates again, the operation must be repeated.

Anecdotes Illustrative of the Frontispiece.

As this work commences with a *frontispiece* containing *portraits of dogs* whose virtues and sagacity deserve commemoration, it shall *close* with the recital of the immediate facts there *graphically* alluded to. The *upper portrait* is that of a large one of the water breed, whose owner (a German gentleman of fortune) boarded and lodged in the house of a clergyman with whom I was intimate. This gentleman's attachment to his dog was such, that, whatever sum he agreed to pay for his own board, he always tendered half as much for that of his dog, that thereby he might insure him the treatment his fidelity so well merited. Travelling in Holland, the German one evening slipped from off the bank of a large dike into the water below, which was both wide and deep: being wholly unable to swim, he soon became senseless; and when restored to recollection, he found himself in a cottage on the opposite bank of the dike to that from which he fell, surrounded by persons who had been using the Dutch means of resuscitation. The account he received from two of them was, that returning home, they saw a dog swimming at a distance, seemingly anxiously employed in dragging and sometimes pushing a mass he appeared to have much difficulty in keeping above wa'er, but which he at length succeeded in getting into a small creek, and drew it to land. By this time the peasants had advanced sufficiently to discover that the object of his solicitude was a man, which this animal, exhausted as he must have been, immediately set about licking the hands and feet of. The peasants hastened across by the nearest bridge, and conveyed the body to a neighbouring cottage; and which, on being stripped, was found to be deeply indented by the teeth of the dog, both in the nape of the neck, and in one of the shoulders also. The remaining scars the master used to shew with much satisfaction; and nothing could shake his firm conviction, that his dog had first suspended him by the shoulder, but that, finding his head was not elevated above the water, he had shifted his hold to the nape of his neck, for the ex-

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press purpose of so elevating it. And, however we may hesitate to attribute this change of position to a motive so intrinsically intellectual, yet we must respect his error, if it was one; for where is the mind that might not be warped by such a debt? If my memory serves me aright, it was more than a quarter of a mile that the dog had to swim with his master's body before any creek offered; and, when arrived there, he had still to drag it on a bank.

The *lower portrait* represents one of those remarkable instances of intelligence and devotion to the service of man, for which *the shepherd's dog* is so justly celebrated. This dog was the property of a butcher and drover living in the neighbourhood of Hexham; much of whose business consisted in purchasing cattle of all descriptions, and taking them weekly to Alston market, a distance of nine miles. In so doing, this dog exhibited such extreme adroitness, that at length, to fulfil a bet made, the dog was entrusted alone with a mixed herd to take to this market, which he did without the smallest mishap. Arrived at the end of his journey, he drove the whole up the yard his master was accustomed to take his cattle to; and there he delivered them up to the person who usually received them, by significantly barking at his door. What more particularly marks the extraordinary sagacity of this animal, is, that the tract over which he had to take his charge was entirely an open moor, studded in many parts with grazing flocks. When these intercepted his progress, he has been seen to start forward, and, having stopped his own drove, to chase the others to a distance, that he might proceed without interruption or risk of intermixture. Satisfied of his ability and fidelity, he was repeatedly, after the first essay, thus entrusted alone, when circumstances rendered it inconvenient to the butcher to attend himself; and it was stated that he never lost one. I had no opportunity myself of seeing this dog, for a gentleman, hearing of his exploits, had bought him; but I purposely went over the ground he used to travel, and visited the yard in Alston to which he used to drive the cattle for delivery: and many persons

with whom I used to converse in Hexham, where I then resided, had seen him; and they all fully authenticated the facts as I have stated them. A very interesting account of similar properties in the tending of cattle in two dogs of this kind, is related by Mr. Hogg, the celebrated Ettrick shepherd, in *Blackwood's Magazine*, and also in *Captain Brown's Sketches and Anecdotes.*

The critical reader will probably be struck with a topographical discordance, between the *engraved display*, and the *descriptive account*, in these illustrations of the qualities of the dog. The dikes of Holland seldom present much rural beauty, and are not often graced with impending foliage; neither are fertile banks and tall trees very commonly met with on the moors of the north: but the fact is, that the sketches illustrative of the real spots, which I gave for the guidance of Mr. Austin, were not so well calculated to display his well-known talents as an artist, as the embellished scenery which he furnished: and, it being then too late to remedy the discrepancy, the reader will, I hope, be content to sacrifice a little truth to additional beauty. Probably it will not be the first time he has done so, with his own consent: it is forced on me.

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